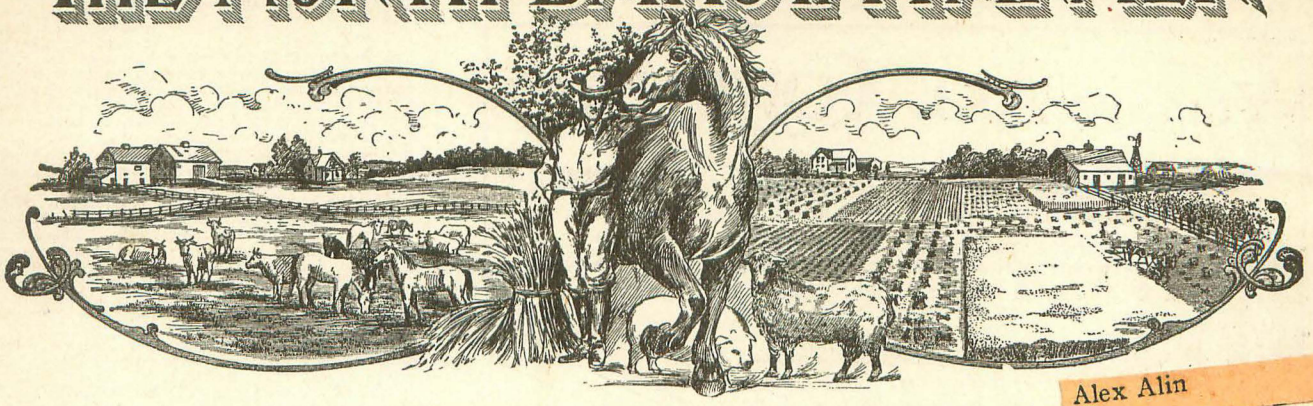
THE NORTH DAKOTA FARMER

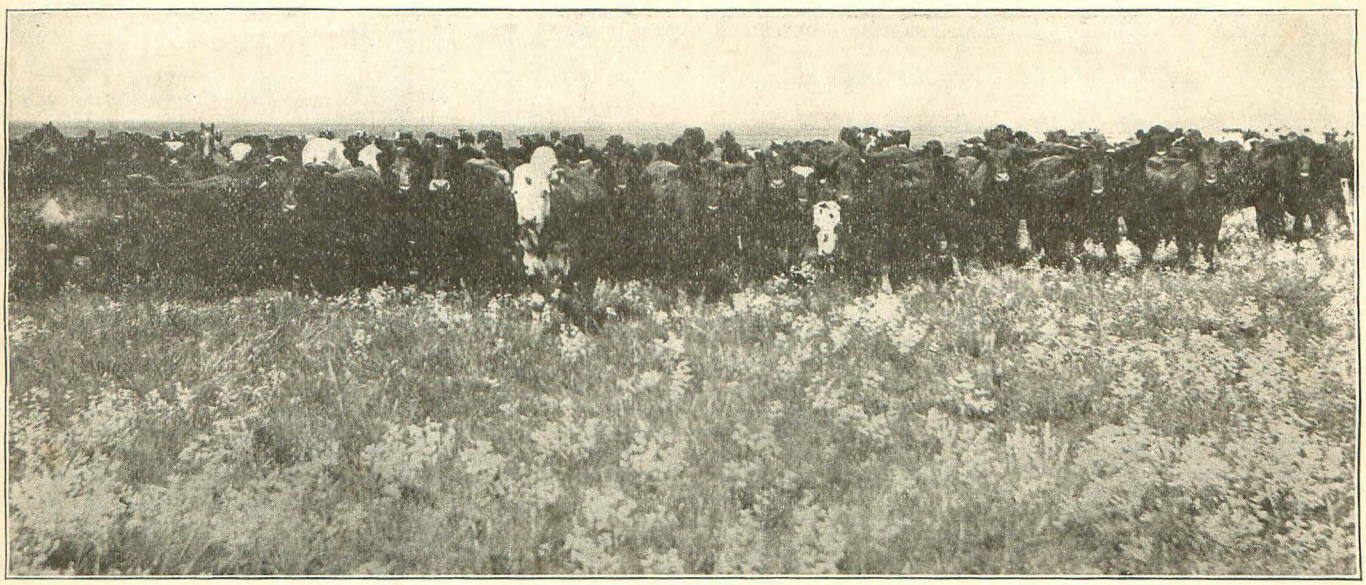


"THE NORTH DAKOTA FARMER FOR NORTH DAKOTA FARMERS"

Vol. 10, No. 8
LISBON, N. D.

FEBRUARY 15, 1909

50 Cents a Year
FARGO, N. D



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—You want that sweet tone to last
—You dislike to spend any more money than necessary:—But every adviser, and so-called expert, recommends a different make. You are like a man lost in the woods. You don't know which way to turn. This surely describes your position.

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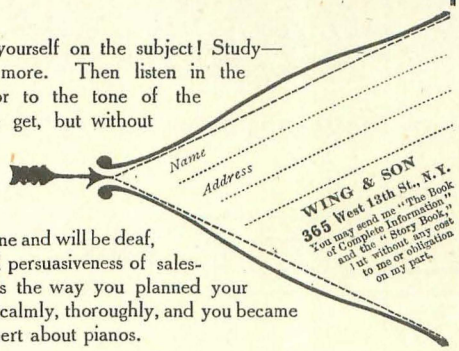

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It tells how to test a piano and how to tell good from bad; what causes pianos to get out of order. It makes the selection of a piano easy. If read carefully it will make you an expert judge of piano-tone, of action, workmanship and durability.

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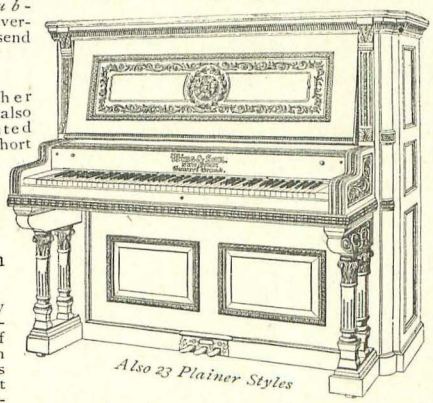
SO FAR not one word about ourselves. We are and have been the manufacturers of **THE FAMOUS WING PIANO** for the past 39 years!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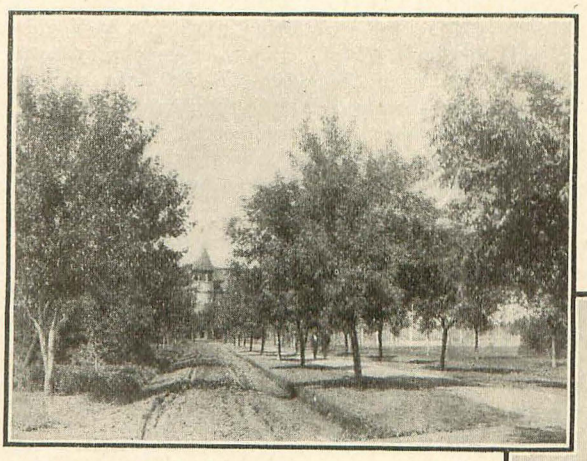
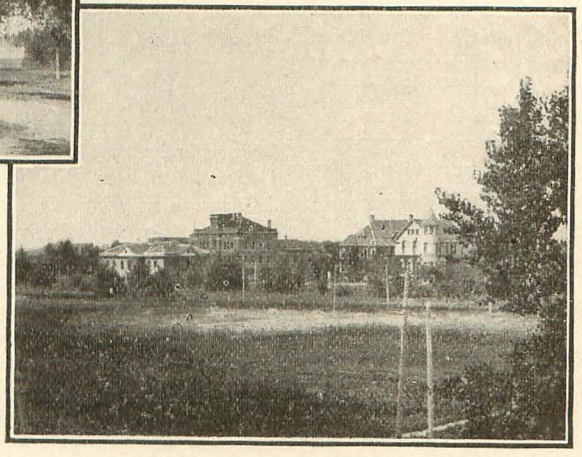
THE NORTH DAKOTA FARMER

Vol. 10, No. 8 LISBON and FARGO, N. D., FEBRUARY 15, 1909 50 Cents a Year

OF GENERAL INTEREST





Two Glimpses of the Agricultural College at Fargo

HUMUS IN SOIL

By Prof. Andrew Boss, Minnesota Agricultural College

Humus retains moisture, aids in maintaining the temperature of the soil, and it also furnishes favorable conditions for the growth of bacteria, which in turn have much to do with making insoluble soil minerals available to plants. In order to carry on a system of crop rotation economically and effectively, it is very necessary to lay off the farm into fields as regular as possible and into as many fields as there are years in the rotation period. For instance, if a three-year rotation such as corn, oats and clover, is thought to be desirable, the farm would need to be laid off into three fields, and in case a five-year rotation is to be practiced, the farm should be divided into five fields, and so on. As an evidence of the advantage derived from systematic crop rotation, I find that in a field where corn had been grown continuously for twelve years the average yield of corn per acre during the thirteenth and fourteenth years was 20.8 bushels, whereas the average yield of corn during the same years on land that had been under rotation for twelve years was 48.6 bushels per acre. It was stated that the common objection against rotation of crops, especially in grain growing sections—viz., that it reduces the amount of grain that can be raised on a given area—was groundless. Referring to experiments that have been conducted at the Minnesota experiment station during the last nineteen years, we have demonstrated that as much grain was raised on a given area of land in a five-year period by maintaining two-fifths of that land in grass and three-fifths in grain as by cropping that same land with grain every year. Lectures are illustrated with stereopticon views showing crops on land that had been under rotation and on land that had been used for single crop purposes for ten to twenty years. The physical condition of soils from rotation fields are illustrated by means of stereopticon views and contrasted with the condition of soils from plots that had been used for continuous cropping.

"THE AGRICULTURAL OUTLOOK" DELIVERED BEFORE THE CONVENTION OF GRAIN AND STOCK GROWERS OF 1909 BY PRESIDENT J. H. WORST

(Continued from January)

Under our present system of continuous wheat farming it is evident the time is not far distant when there will not be sufficient spring wheat grown to make a market. Unless a radical departure is made in our farming methods the doom of spring wheat is not far distant. Mark the prediction.

Certain elements must be restored

It has been conclusively demonstrated that as long as our soil was rich in humus and nitrogen it produced profitable crops of spring wheat. As long as these conditions prevailed the yields were large and the quality was good. Continuous cropping and straw and stubble burning reduced or is reducing the percentage of humus, nitrogen, potash and phosphoric acid below their ability to produce a profitable yield except during the most favorable seasons. Summer fallowing has occasionally been resorted to but it adds nothing to the fertility of the land, except to unlock more of its natural fertilizing elements, which at best but hastens its impoverishment. A whip will temporarily increase the speed of a horse, but utter exhaustion will the sooner result. There is no nourishment in a whip. There is no nourishment in summer fallowing. It is apparent

therefore, that nothing short of restoring the humus thru the agency of barnyard manures and soiling crops, and that of nitrogen thru the cultivation of clover and other legumes will bring the land back to its original condition, when good crops of spring wheat can be relied upon as formerly.

It is most desirable from every view point to continue to grow wheat, even in increasing quantities, but not at the rate of 13 or even of 20 bushels per acre. The reason for this statement will appear clearer from the following deductions made by President James J. Hill in a recent address. President Hill says that by 1950 we shall have 200,000,000 people to feed. Last year we raised about 658,000,000 bushels of wheat and good prices prevailed. With 200,000,000 population we shall require six and one-half bushels of wheat per capita for seed and bread. This will require 1,300,000,000 bushels of wheat, or twice as much as we raise today, with not any for export. Well may he ask: "Then where are you going to get the bread to feed this 200,000,000 people." This is no idle question. It is, on the other hand, full of significance for us of the spring wheat region. It indicates a mission for this northwestern country that we cannot afford to ignore. Here is the natural bread basket of the United States, but its strength and virility and potentiality is being burned up thru a system of wasteful exploitation. The opportunities of a mighty future are being sacrificed by farming methods discredited by enlightened agriculture everywhere and tolerated in scarcely any other country. When we boast of having the richest soil "upon which the sun shines in his daily rounds," and produce an average yield of only 13 bushels of wheat per acre, there is inconsistency in our boasting or in our farming methods.

With a prospective demand within our own country for 1,300,000,000 bushels of wheat by the year 1950, or twice as much as we now produce, upon practically the same area of land, (for the area of wheat land cannot be greatly increased). it should require no argument to convince anyone of the tremendous profit that must accrue to the farmers of that period who can raise wheat. The demand for wheat, before these boys now in school are much past middle age will be tremendous and the price will be in proportion to the demand. This demand will increase from year to year as also will the price. Is there any other kind of business enterprise that would not be making tremendous preparations with such a golden harvest in prospect? Are our farmers preparing for it?

I have seen men in middle life, when they should glory in their manly strength, turn sadly away from promising business opportunities for lack of that mental and physical vigor which they had lost earlier in life thru dissipation and riotous living.

When the golden opportunity comes shall our fair lands be like a decrepit man, old beyond his years, weakened and emaciated thru youthful excesses?

Every crop removed, every strawpile burned weakens the soil and hastens the end of profitable cultivation. No state holds within her grasp such tremendous and far reaching opportunities for real and continuous prosperity, and all else in the way of civilization that is based upon abundant wealth, honestly acquired and equitably distributed, as North Dakota. And yet no state pays less attention to the future of its agricultural possibilities, simply because hitherto our farmers have done well by taking the cream off the land. We have about reached the parting of the ways and from hence forth, if reason does not, then stern necessity must direct the forces of agricultural improvement. For reasons too numerous to mention in detail we may safely recommend

Diversified Farming

as the only system of farm management that has the sanction of science and the support of practical men. What it has accomplished for other countries it will do for ours. It is the best if not the only safeguard against soil deterioration, and also the best insurance for farmers against the hardships that so frequently result from crop failure when a single crop, like wheat, is relied upon for the payment of debts, or for support of the family. Diversity of crops not only insures a more regular income but has many other advantages, among which are the following:

1. When one crop is grown continuously, heavy drafts are made on certain soil elements while others are used only to a limited extent. This tends to weaken the productive power of the soil for that particular crop. A well planned rotation draws somewhat evenly upon all the elements and maintains a better balance of fertilizing properties in the soil.

2. Every crop has its natural enemies such as injurious fungi and parasites, just as each sort of animal has its particular kind of lice. Continuous cropping to one kind of grain tends to produce favorable conditions which encourage the multiplication of these fungi and insects until their ravages greatly injure or destroy the crop. A change of crop tends to starve out these pests before the kind of grain they feed upon is grown again, in the rotation. Certain toxic elements also are exuded from each particular kind of grain, it is claimed, which are poisonous to its own but not to other varieties of grain. These toxines increase faster than the soil can absorb them, where the same grain is grown continuously, and the result is "wheat sick" soil. A change of crop remedies this.

3. Certain weeds find favorable conditions with particular crops of grain and soon become a pest, not only retarding the growth of the crops but robbing the soil of its moisture in the dryer sections, and of its fertility in all localities. A cultivated crop at regular intervals destroys weeds, also conserves the moisture and leaves the ground in excellent physical condition.

4. Diversified crops distribute the work more equitably thruout the year; insure the farmer against disaster except where all crops fail, which seldom occurs. The rearing of livestock, a very essential factor in a proper rotation, enables him to provide barnyard manure to maintain the fertility of the land. Without barnyard manure, or commercial fertilizers, which are more costly and unnatural, no farm can be worked profitably except during that period when the soil is rendering its pioneer service. I am confident that a quarter section of land, or a larger area, beginning with the prairie sod and farmed to wheat continuously, burning the straw and the stubble every year, and being credited with all it produces, likewise being debited with all expenses incurred for cultivation, seed, harvesting and marketing of grain, will, in time, leave the farmer without a single asset—not even the land. In other words, all the money made while the land is new will be required to meet deficits later, when the land has become thin, until finally everything will be lost. The net profits, accumulated while the land was in its virgin state, will gradually be drawn upon as the fertility becomes exhausted, until finally all the profits will be consumed to make up deficits during seasons when light crops or total failures will have caused the land to fall below the profit producing point. It may take 50 years for a farm, thus managed, to reach the zero point, but what of that? Should a system of agriculture that ultimately spells zero, however remotely, be encouraged in a state whose sole reliance is agriculture? Does it seem like a fair business proposition to thus manage our farms in view of the great demand for bread that is bound to confront even the present generation? that certainly will confront the next generation? Shall the world's great "breadbasket," figuratively speaking, be trampled upon, burned up, demolished, "busted"?

Not Too Late

But let us not become pessimistic. We have not yet reached the extreme danger point, tho many of our all-wheat-straw-burning-farmers have already been compelled to draw heavily upon

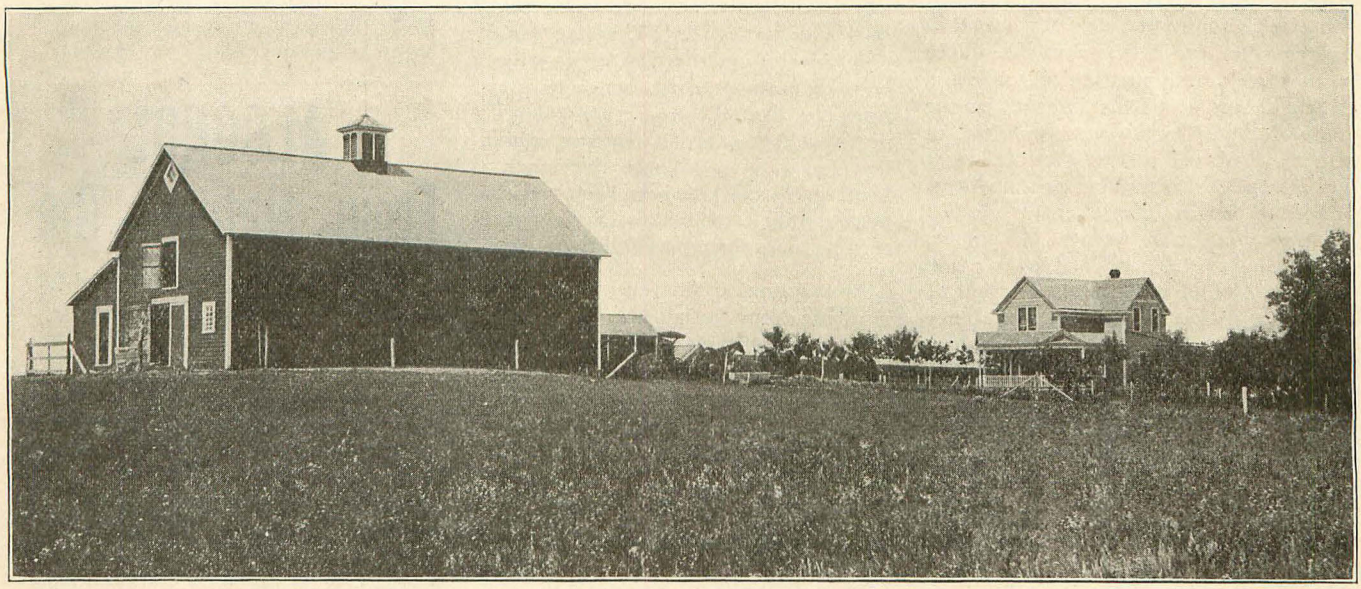
their past accumulations to meet current expenses. It is not too late to make amends, and it is with this desirable purpose in view that prompts me to hold you a picture of what may come to pass. If a well meaning man, forty years ago, had prophesied in like manner as to our country's present timber supply, his prophecy would doubtless have been looked upon as many of you now look upon these remarks of mine. Forty years hence, however, these predictions may be justified in the light of bitter experience. Let us avoid the bitter experience by doing the right.

Let us not forget that American prosperity is based entirely too much upon wasting the natural resources of the country for quick returns in money. Our anthracite coal mines give employment to thousands of laborers at fair wages, but in 50 years these mines will be exhausted. The lumbering business gives employment to nearly a million laborers, but in 20 or 25 years the forests will be exhausted. The bituminous coal mines will last much longer, but like our forests, more than half the coal is wasted in the haste to make larger profits and quicker returns. The same may be said of iron and copper mines, gas and oil wells and particularly of the natural fertility of our northwestern prairies. Fifty years hence we will have twice as many people to feed, with millions of workmen seeking new kinds of employment because the old kinds have become exhausted. The prosperity which grew out of the rapid and unnatural exploitation of Nature's bounties will have ceased and old world conditions will have forced themselves upon us. A few large fortunes will represent the country's exhausted resources, while millions of destitute laborers, including farmers, may sigh for the golden era which is ours at the present time. This is no idle dream. The country is just awakening to the enormous waste that is going on; to the prodigal destruction of timber and minerals and to exhaustive methods of agriculture—all for the sake of getting rich quick regardless of our children's natural heritage.

Tri-states are the Bread Producers

Minnesota and the Dakotas constitute a great bread producing empire, and what is more, the near future will make the most drastic demands upon every available acre for wheat just as often as that acre is in proper physical condition to produce wheat. When the demand is great prices will be good. Common business sagacity therefore, dictates the financial advantage of producing all the wheat we can, consistent with the principles involved in crop rotation. To grow wheat continuously will, in a few years, make wheat production impossible. The land will simply "peter out," and that just when we need it most; just when the demand for wheat becomes both great and permanent. To avoid such a calamity and to be prepared for the industrial advantages that surely await this spring wheat region, we should not only conserve our soil fertility but add to it in every possible way. It is a business proposition that vitally affects us, our children and the future prosperity of the state.

(To be continued)



Comfort for Family and Stock

VALUE OF CROP ROTATION

On too many farms in Manitoba and the prairie sections generally, wheat is grown as a continuous crop, with an occasional summer fallowing when the land gets so weedy it will not produce a crop. By this method of cropping the land is being depleted of its fertilizing constituents as rapidly as the owner can extract them. The gradual depletion of humus, or decaying vegetable matter, renders the soil more and more unable to hold a sufficient supply of water to last the crop thru the growing season, and when drought comes, as it did this season, and will again, the crop is a partial failure.

The remedy is to grow a hay crop every three or four years, either grass or clovers. The residue from these crops decays and renews the humus of the soil, renewing its water-holding and crop-producing power. Clover, and especially alfalfa, is superior to grass because all leguminous crops extract nitrogen from the air, and on their decay this enriches the soil, adding an element that is largely used by the wheat plant. The manure from the hay fed to the stock, should always be returned to the land. A light dressing of manure causes the wheat to ripen from three to four days earlier, thus often saving a crop from danger of frost.

Under a system of management with one-quarter of the land in grass each year, the Minnesota Experimental station found, by actual experiment, that an acre of land, cropped one year with grass and then three years in wheat, produced more wheat, and hence more profit, in four years than an acre of similar land cropped continuously with wheat for four years.

Decreasing Acreage of Grain Does Not Necessarily Decrease Profits

The net profit from an acre of wheat on run-down soils is very small; consequently, decreasing the acreage of wheat

under such conditions will not materially decrease the net profit of the farm.

Table showing Net Profit or Loss from Yields of Wheat.

Yield	Price (a)	Value per Acre	Cost of Production including rent (b)	Net Profit or Loss
20	$ .638	$12.76	$ 7.89	$+4.87
16	.638	10.21	7.89	+2.32
12	.638	7.66	7.89	— .23
10	.638	6.38	7.89	—1.51
8	.638	5.10	7.89	—2.79

(a) Average farm price December 1st for 10 years (1895-1904 inc.) as given by U. S. Dept. Year Book, 1904.

(b) Minnesota Bulletin No. 97, page 40.

From the above table it will be seen that as large a net profit is realized from one crop of twenty bushels per acre as from two crops of sixteen bushels; and that a twelve bushel crop or less yields a net loss.

However, with the high prices for wheat prevailing in Canada this year, the Western farmer can make a profit on a crop giving a low yield of wheat that in years of ordinary prices he would come out just about even on, or lose a slight amount. With wheat selling around ninety-eight cents, a yield of eight bushels will just enable the farmer to pay the cost of producing the wheat. Every bushel produced over this amount is direct profit to the farmer. Of course, if the wheat is frosted, or of lower grade because of foul weed seeds, a yield of even ten or twelve bushels would not give much, if any, profit. On cheaper lands, of course, the cost of production would be lowered to a slight extent, as the rent of the land would be less..

It is a safe conclusion that seventy-five acres of grain each year on land growing a crop of clover every fourth year will yield a larger net profit than will one hundred acres sown to grain continuously.

A hay crop is one of the very cheapest crops to grow, as no extra preparation of the land or sowing is necessary, the grass seed being sown with the preceding grain crop. All the charges to be made against the grass crop are rent, cost of seed and harvesting. This is considerably lower than the cost of growing a crop of grain or corn, hence it is not necessary that the crop yield as large a gross product in order to return equivalent net profits. Where live stock is kept, grass marketed as beef, mutton, pork or milk, often makes a larger net return per acre than does grain.

In addition to whatever profits may be made from the grass crop, the first grain crop following it will usually yield enough more than it would following a grain crop to net as large a profit as would two low yielding crops of grain. —Farm Cops.

HOW A SOIL SURVEY IS MADE AND WHAT IT MEANS

By Daniel E. Willard, Professor of Geology, N. D., Agricultural College

What a soil survey is, and how the actual work in the field is done, are questions that are often asked, and it is to explain these things, and so perhaps aid in promoting the cause of good farming, that this paper is written. It will be conceded by all thinking persons that the soil is the most important resource of our commonwealth, and this being the case, the corollary follows that anything that will have the effect of stimulating and encouraging the best and most scientific development of the resources of the soil is advantageous and desirable, and worthy the support of all who are interested in the development of the state and the advancement of her wealth and culture.

In the study of the soil, as in the study of any natural science, there is more than one way in which the problem may be approached. It might be begun, for example, by a theoretical consideration of the external portion of the crust of the earth, with the effects of wind and rain, heat and frost, erosion, etc., etc., as affecting the surface portion of the earth's crust, and from these general relations there might be deduced the conditions under which soils of various kinds might be formed. Again the character and qualities of soils might be studied from the standpoint of the geology of the region and the geologic processes thru which the rocks have passed in the formation of the soils, the various soil types being shown to arise from certain kinds of rocks under the action of certain agencies. This would mean that the geology of the region would first need to be studied, and the determination and classification of the soils deduced from the geological data. Still another plan of approach to the problem is that of examining the soils as to their texture, structure, chemical character, and organic matter contained, the classification of the soils being made upon the basis of these qualities of the soils themselves, the study being carried back from the soils as they occur in the fields to the geological conditions which determined the present character of the soils.

The last method is most nearly that used at the present time by the United State Bureau of Soils in the study and classification of the soils of the United States. When therefore a soil survey is to be made in any region, all the facts bearing upon the character of the soils of every part of the area to be mapped are sought for in the field by direct study of the soils themselves. "Go, study the specimen again," the great teacher Agassiz is said to have said to one of his pupils who came to report to him on the lesson assigned. So the student went away to spend another day on the lesson which he thought he had already mastered. And again the next day Agassiz assigned him the same task. And still again the next, and so on for many days. Then at last the student began to discover that what he had at

first supposed was a diligent mastery of the subject was in reality but a faint beginning of the investigation of the subject. So in the study of the soils it is only by going at the problem over and over again and persistently sticking to it, that the fullest and best knowledge will be obtained.

We may think we know enough about the soils to make profitable use of them, and this may be true. But still we may be far from making the most profitable use of the soils.

The object of studying the soils is, as has before been suggested, to help the cause of good farming. There is an immense loss of time and money every year in our own and in other states due, we think it is safe to say, to poor methods of farming, or perhaps it would be better to say, due to unsuitable methods of farming. And this comes about because of lack of knowledge of the character of the soils and the best methods of handling different kinds of soil in relation to cultivation and crops. It is true that the progressive farmer learns from experience and will in time know what soils are best suited to particular crops. But the old proverb that experience is a dear teacher applies with tremendous force to experience of this kind. Many farmers have been successful and accumulated a competence despite the high price paid for their experience; but while many succeed, multitudes by comparison fail.

If now the cost of success could be lessened by reducing the number of unprofitable experiments, and the number of those who fail could be reduced by reason of knowledge of what has already been learned by some one else in some other place, the net productive capacity of the farms and the profit to the farmers would be comparatively increased.

The purpose of a soil survey is to ascertain the nature of the various kinds of soils, their properties and qualities and how these will affect their productiveness and adaptability to different crops and modes and cultivation, so that the experience of others in other localities may be made use of in determining methods of farming so that the experience gained by one may be used to the profit of all. It is not often the case that the soil in a given locality will grow successfully all the crops that are generally raised thruout that region. Corn may grow well in some fields while no amount of cultivation or fertilizing would make it succeed on another field near by. So wheat may not be profitable on fields that would grow some other crops with profit.

One object sought to be accomplished by a soil survey is to determine in advance what crops will probably be most successful on the various types of soil, what kinds of crops and what forms of cultivation will probably be best, without the costly experience of trying different crops to see how they will come out.

In many southern states, where cotton, tobacco, and rice are grown, a farmer would not think of selecting land for his crops without first studying the results of a soil survey and consulting the soil map to determine what soils are adapted to the crops to be grown. Experience has taught the southern planter that it is too expensive to plant these crops on lands, the adaptability of which to the particular crops has not been determined by a careful study of the soils by trained experts.

SOCIETY OF EQUITY TRUST

Terminal elevators the solution. Organization by the Society of Equity will enforce legitimate demands.

North Dakota Farmer,
Lisbon, N. D.

Dear Sir: We enclose herewith an article giving an outline of the plans of the Society of Equity for the regulation of the price of grain, thus securing to the producer the full of value his crop at prices, giving him a legitimate return on his investment.

We believe the article will prove of interest to your readers and trust you can find space for its publication.

Thanking you for past favors, we are

Yours very truly,
N. BATCHELOR,
Chairman Press Committee

The Buffalo News, N. Y., of February 7th, in an editorial commenting on an article published in the Fargo Morning Call, the Forum and other papers relative to the cost of producing wheat said, "It is not so very long ago since dollar wheat was considered about the reasonable goal for good steady prices in the wheat market and by that was meant dollar wheat at the market and not on the farm. Times are changing clearly, when the Society of Equity in the heart of the Red River Valley wheat country can argue soberly that the farm price should be $1.25 a bushel in order to make satisfactory return on the investment. The question is, "What are you going to do about it?"

That is the question, "What are you going to do about it?" The Society of Equity has shown the producer and the world what it costs to raise wheat. It has shown the wheat grower that he can secure a just and fair profit by organization, that organization is an absolute necessity for the farmer.

Now every one knows that it was by organization the Standard Oil Co. made itself the most powerful corporation in the world and that all the present great industrial combinations are builded on the same general lines. So too the wage worker, seeing the necessity for organization, formed unions and like Standard Oil used means to enforce his demands which he usually made his employer grant him. The patient farmer conscious of his strength and not realizing that he was paying for all of the combinations of capital and labor jogged along in the even tenor of his way, working from sun to sun that the world might have food and in return receiving board

and clothes for himself and family, and suffering in silence when drouth or hail storms destroyed his crops. Now what is the wheat grower going to do? The farmers' elevators have been of considerable benefit, but that benefit is by way of securing better weights and perhaps better grading. The real evils are the Board of Trade manipulations thru dealing in futures and the terminal elevators and their nefarious methods. The control of the market is the all important problem. With that end of it in his possession the farmer can enforce his demands. To that end terminal elevators owned by the Society of Equity are a necessity. Already the first elevators to be owned by the Society have been planned and options on locations in Minneapolis and Superior have been secured. Subscription lists are now circulating among the Society Members and half of the amount needed has been pledged. When the elevators become an established fact the control of the supply will be taken out of the hands of the Boards of Trade, thus depriving them of grain in which to deal. As the society will regulate the amount to be sold to, the actual demands, any remainder being stored in the terminal elevators or remaining on the farm, there to stay until the consumer needs it. With such a state of affairs, speculation will be impossible and the producer will receive the amount of the value of his crop when sold, less the actual cost of handling it. This plan when put into execution will destroy the Board of Trade and the old line elevators at one blow.

TREMENDOUS ACTIVITY PROMISED BY THE AMERICAN SOCIETY OF EQUITY

Great is the work done by the Society of Equity, during the last two years, as a result of which the wheat grower has reaped a bigger harvest from the advance in prices, than he has in the past from growing the grain. The wheat grower has been taught that organization for him means a fair wage, interest on his investment and protection against fraud.

TEXTURE AND COLOR OF SOILS

By Prof. Harry Snyder, Minnesota School of Agriculture

If the soil is dark brown or black it is an indication that there is a good supply of vegetable matter or humus. Usually black, dark brown and yellow soils are the most productive. Not all black soils, however, are equally productive, as some contain acid substances that are injurious to crops.

Note whether the lumps of soil crush readily. Soils that form hard lumps which crush with difficulty are not easily tilled. Wet some of the soil and knead it in the hand. If it is sticky and feels oily when rubbed between the thumb and the fore-finger, the soil contains an appreciable amount of clay. Grains of sand have a sharp gritty feeling, and the more sand and silt there is in the soil, the less plastic it is. By the feeling of a soil when wet it is possible to determine whether it has sand or clay-like properties. Test the surface soil and subsoil as to its grain, both when wet and dry. Some soils contain an excess of clay, and as a result they are not easily worked or drained. On the other hand, some soils do not contain enough clay to keep them from rapidly drying out.

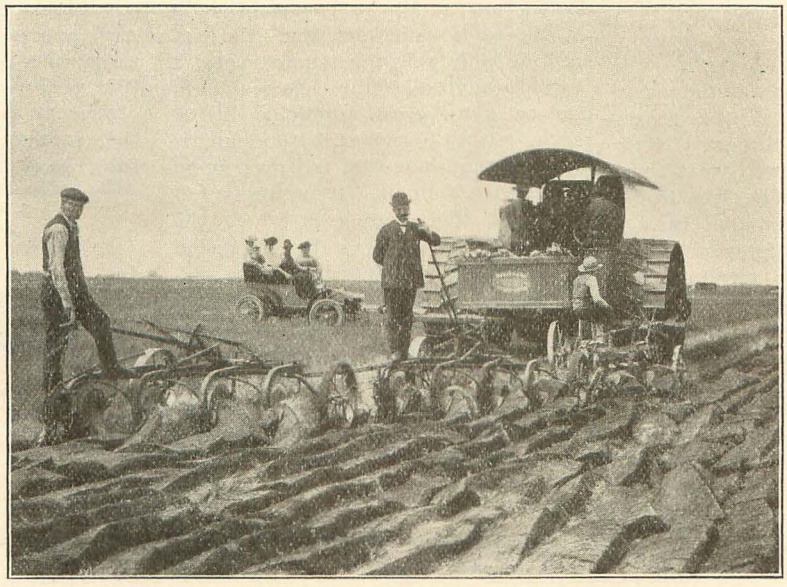
Clay Loam Soils

In color, many of these soils are black, indicating a good supply of accumulated vegetable matter. The small lumps crush easily, due to the presence of sufficient sand to prevent the formation of hard lumps. When the soil is wet and kneaded in the hand, there is a slight tendency to form a sticky mass, and when rubbed between thumb and fore-finger, the gritty sand grains can be felt but the sharp sandy feeling is modified by the fine clay that is present. When well drained and free from excess of either acid or alkaline salts, clay loam soils are generally of high fertility, are capable of producing a variety of crops, particularly grasses and grains, and are responsive to judicious cultivation, coupled with crop rotation and the use of farm manures.

Cultivation

A five to six-year rotation of crops consisting of two to three grain crops, a corn crop (manured) and one year each of meadow and pasture in which clover forms the main part, is the best system of cropping for a clay loam soil. This soil should be plowed to a medium depth 4½ to 6½ inches, depending upon the

season and the crop to be produced. The cultivation should be thoro, a fine seed bed produced, and the land lightly rolled if necessary to pulverize the clods. A clay loam should be given deeper and more thoro cultivation than a sandy loam. As a general rule, our soils are not cultivated enough. A large amount of plant food can be rendered available by cultivation. The yield and quality of farm crops could be materially increased by better and more thoro cultivation. In many of the western prairie states there are large areas of clay loam soil rich in reserve plant food, capable of producing the best of crops if given intelligent treatment.



Simply Up To Date

FEDERAL GRAIN INSPECTION

By Senator P. J. McCumber

(No man has made a more careful study of the problem of grain inspection and the evils connected with the present system of state and local inspection than has Senator McCumber and his views are set forth in an address before the Tri-State Grain Growers Association at Fargo. While the address is long for our pages we shall give the same in full in this and succeeding issues—Editor.)

Mr. Chairman: The question of grain grading and inspection is one which directly involves the comfort, the prosperity, and consequent happiness of one-half of the people of the United States. Its importance has never been fully realized by the public generally. While the injustices perpetrated under the present system of grain inspection and grading thruout the country have been felt by the great grain producing public they have never fully comprehended the extent of the injuries inflicted upon them. The farmers of these new, western states often complained of the taxation necessary to support the state government, while mutely submitting to a grain grading system exacting from them, alone, enough each year, to pay the entire expenses of state government three times over. They have beheld thousands of enormous fortunes spring into existence in a very few years at every great grain shipping terminal in the country, but have had only a faint, if any, conception of their own losses which have contributed to those fortunes. They have for years understood the unreliability of grades, but the workings of the system were so far beyond their ken that they had no hope of ever solving its mysteries or escaping its exactions.

Mr. Chairman, I want the farmers of this great country to know definitely whether or not they are injured by any system. If they are, I want them to know to what extent and how the injustice is accomplished. Then I want to indicate to them what I believe to be the only remedy, and then I want to ask their co-operation and assistance in securing the remedial legislation.

No one man or number of men can ever right the wrong against any people until those people themselves arise and demand that the wrong shall be righted.

I believe I have studied this question long enough and thoroly enough to comprehend its importance and appreciate the obstacles to be overcome in securing a proper remedy. Whenever I discuss farm products I know that I am discussing articles the production of which costs in labor expended on them, from three to five times as much as any other articles of equal selling value in the United States. I know that it requires more labor to produce one bushel of wheat than it requires to produce a $5 Stetson hat. I know that it requires more expended energy to raise, feed, care for and milk the cows, to separate the cream and churn it, and make it into a 32-cent roll of butter, than is expended in spinning, weaving and manufacturing a $5 shirtwaist. And before I get out of this world I want to do what I can to make the farm labor as valuable, as a purchasing commodity, hour for hour, as any other equally intelligent labor in the country.

And the first step and, as I see it, an essential step, in the farmer's progress towards that goal, is to clear away every obstacle which obstructs and chokes the channels of grain trade and thereby robs him of the legitimate profits of his toil.

I know there are a great many persons who will say: "Oh, well, the farmer is doing pretty well. He is just as well off as the average carpenter, stone cutter, or mason in the cities." Well, if he and every member of his family work twice as many hours and spend only half as much money on themselves, why should he not be worth four times as much? If the farmers of this country worked but eight hours a day; if they unhitched from their drills, their binders, their plows, and had all their chores completed at 4 o'clock in the afternoon and did not begin their work the next morning until 8 o'clock, and then worked as leisurely as the other laborers spoken of and then spent as

much for their pleasure and for the pleasure of their families as the average tradesman in any of our large cities every one of them would be bankrupt in less than a year. It is his rigid economy that keeps the farmer's head above water. Let any man who has not tried it go out and purchase a quarter-section for $40 per acre and pay for it out of its proceeds, and he will learn a lesson in economy such as he never dreamed of before.

This digression, Mr. Chairman, is but a side light turned upon the important question of grain grading. I but mention it to emphasize the justification for every honest and earnest effort to promote the financial welfare of the tiller of the soil.

The System

What are the defects of the syslem of handling grain at the great markets and what are the evils that flow from them? I wish to treat this subject fairly and candidly, free from criticism of individuals or concerns.

The great elevator interests, especially those controlling terminal facilities, seem to regard the proposition of federal inspection especially aimed at them. Let me assure them that my aim is simply to secure exact justice as between producer, purchaser and consumer, and thereby enhance the legitimate interests of all. And in this effort I want the co-operation of every elevator interest which wants fair dealing and the elimination of the enormous difficulties that arise out of both non-uniformity, and inefficient, and in very many cases, wrongful grading of grain.

When I first introduced the bill for federal grain grading, nearly all the elevator interests seemed to think there were hidden dangers in it. Every one of the boards of trade or chambers of commerce, many of whose controlling members had been fattening upon the iniquities of the present system, jumped upon it with that ferocity which characterizes the carnivorous animal when you attempt to separate him from his prey. Then it began to be discussed by trade journals. The independent elevators, those having no interest in great terminals, took it up. I was then called upon to present the subject to their conventions. The result is that all the independent elevators of the country and all the farmers' co-operative elevator companies are ardent supporters, and even the boards of trade at the great wheat markets, where not wholly dominated by the mixers, and those who derive their principal profit from improper grading, are gradually changing their attitude. Finally the St. Louis board has come out square-footed for it. Most of the millers are favoring it, and lately the foreign trades are asking for it as the only solution of a condition which has degraded the good name of American grain abroad and is rapidly excluding it from many markets.

The principal and aggressive opponents today are the mixing concerns and those who want to control grades for the enormous speculative profits.

Foundation

The foundation which supports each and every irregularity, injustice and wrong pertaining to the grain trade in this country and to our exports abroad, is the very close and intimate relationship between the grain dealers' associations or boards of trade at the great markets and the inspecting and weighing departments.

Practically all grain passes thru one or more great terminals before reaching the consumer. Its value is fixed by the grade that is placed upon it at such terminals. It naturally follows that this grading in which the producing public is vitally interested to the extent of many millions of dollars should be done not only by men who are absolutely independent of any realty to either purchaser, seller or producer, but also by experts of the highest attainments in the line of grain grading. That this is not the case under present conditions every grain dealer in the United States knows.

Our grain is inspected and graded at these great terminals either under rules adopted by a commission created by the laws of the state or by boards of trade. It will be found in the former case that the chief inspector generally receives appointment thru the influence of the purchasing power. In the latter case the board not only appoints the inspectors but determines the rules and regulations under which the grain is to be handled and what shall constitute a particular grade of grain.

In both cases the interest which determines the methods of handling, which promulgate the rules that govern the fixing of grades are the purchasers of grain—are those whose special interest will be affected by those rules and grades. Under such conditions can any man acquainted with average human nature say that these rules will not be made to further the special interest of the great dealers as against the interest of both the producer and consumer? That the inspection and grading depart-

ments at all these terminals are subservient to and dominated by the great purchasing interest is without question.

If a farmer takes a load of hay to any town in this state he takes that hay to a public scales. The man who weighs it has not the slightest interest in the matter. His duties are fulfilled when the beam balances and he has jotted down on a certificate the gross and net weight. The certificate containing those items is received without question by both the owner and the purchaser. Now, suppose that instead of this simple system the farmer, by a rule of some commercial board, most of whose members are buying and selling hay, and are interested in buying as cheaply as possible, is compelled to deliver his load to the purchaser who in a secret place not only does the weighing but in addition is the sole judge as to whether it is timothy, clover or slough grass, and how many pounds should be deducted for weeds. How long would any civilized community submit to such a condition? And yet that is just exactly what the entire farming interest of the whole country has been compelled to submit to ever since the initiation of the grading system.

Result

What are the results of this close connection between the grader and the purchaser? The result, and most universal, is what is known as rigid inspection into the terminal elevators and loose inspection out, or in simple homely English, stealing one grade in and another grade out; the second is the non-uniformity of grades whereby each section can play against the other and use the farmer's product for speculative purposes; the third is the uncertainty that pervades the whole commercial field. A cargo of grain, without being unloaded, may receive three or four different grades applied to it as it passes thru so many different terminal points. The fourth result is the manipulation of grades whereby in a single day all the grain en route and graded on yesterday's basis may, thru a hurried rule of a commercial board, find itself receiving a lower grade on arriving at the terminal, and millions of bushels, purchased at a lower grade and held in the elevators, may be raised a grade or two beyond its inherent worth and unloaded on the consuming public.

Examples

I will give a few examiples along these lines. Thousands could be given. A glance at the reports of the inshipments and outshipments of grain at the great terminals for many years past shows about four times as many bushels of the higher grades shipped out as were received in; while the lower grades amounting to nearly half of the grain shipped in, vault over the intermediate grades, and land in the higher.

Here is a report of the receipts and shipments of a single terminal elevator for only three months:

	Receipts.	Shipments
No. 1 Nor'n.....	99,711.40	196,288.30
No. 2 Nor'n.....	141,455.10	467,764.00
No. 3 Nor'n.....	272.047.20	213,459.30
No. 4.....	201,267.20	.....
No Grade.....	116,121.10	.....
Rejected.....	59,742.30	.....
	890,344.30	877,511.60
On hand (estimated).....		12,832.70
Total.....		890,344.30

The profit in mixing at this elevator for three months as shown by this report, over and above the ordinary elevator profits, was $83,720.69. There should be added to this the amount realized from the dockage, the gift from the farmer to the elevator, at about $8. per ton. Every dollar of this $83,720, from the standpoint of exact justice, based upon proper grades, was illegally filched either from the public at large or from the producers. In either case the producers suffered the loss.

A glance at this table will show that there were shipped out of this elevator about twice as many bushels of No. 1 Northern as were received in; that there were shipped out about three and one-half times as many bushels of No. 2 Northern as were received in. It will also show that 201,000 bushels of No. 4 were received in and not one bushel shipped out; that 116,000 bushels of No Grade were received in and not a bushel shipped out; and about 60,000 bushels of Rejected were received in and no Rejected shipped out. In other words about one-half of the entire grain received in passed from No. 4, No Grade, and Rejected, to No. 1 and No. 2. I do not wish to be understood as questioning the right of a grain dealer to mix up say a quantity of wheat which is scarcely up to the standard of No. 2 with a specially good grade of No. 2 and thereby bringing the whole quantity up to a No. 2 basis, provided it does honestly grade No. 2. But any one acquainted with the grain trade will know at a glance that this great difference, whereby all of the lower grades are entirely lost, is not a just average and could not be secured by any system of mixing if both the inspection in and the inspection out were made by the same standard.

Who gain and who lose by this fraud? It is self-evident that if the farmer by a rigid inspection at the terminals receives one grade less than his grain is entitled to receive, he will lose to just that extent. And it is equally clear that if the easy out inspection certifies the grain a grade higher than it is entitled to receive, the consmuer will lose the value of one grade for every bushel purchased. And it follows that the only man who gains is the man for whose benefit this rigid and loose inspection is utilized and that he will gain the value of two grades. But in the end the consumer will pay no more for a certain grade than it is worth for the purpose for which it is to be used. In other words, if he buys grain certified as No. 2 Northern and receives but No. 3 Northern, he will thereafter pay only a No. 3 price for that certified No. 2 Northern, and as his purchasing price fixes the value at the farm or the point of initiation, it will be seen that No. 2 grain all over the country will be receiving only a No. 3 price.

(To be Continued.)

A. C. COLUMN

An All-College 'Big Feed' is on the books for March fourth. This is to take the place in the college life that the Cyclone Circus held last year, and is the 'something different' which the promoters have been trying to secure, this seems to exactly meet with the popular sentiment. Enough tickets are already sold to make its success practically assured. The time set for the feasting is 6 P. M., and all arrangements are being made to assure complete success of the undertaking. The classes and organizations of the college will be grouped, and everybody will come prepared to have a good time. Supper will be fifty cents a plate, and among those present as speakers of the evening will be some of the leading men of the state. A cordial invitation is extended to all to come out and have a good time.

FROM THE MANAGER

Since our last issue our editor, Prof. E. F. Ladd, was called to Washington on special government business, and hardly had he returned from the Capital, when he was summoned by the British Government to London and at this writing is on his way across the water. Our readers would certainly be indulgent for the tardiness of this issue if they were aware of the difficulties under which the magazine was published. They may have the assurance, however, that our editor, on account of the world-wide reputation gained by his scientific work and manly attitude in pure food matters, is bringing renown not only to the Agricultural College and the State, but to our Nation. Read his editorial on "Business Integrity."

AMONG OUR ADVERTISERS.

MODERN POTATO HARVESTIHG

Tedious Work of Digging by Hand Now a Thing of the Past—Success Achieved by Well-Known Manufacturers

It is not long since potato growers looked forward to "digging time" with dread, because of the hard labor connected with getting in the crop by hand. The monotonous drudge, drudge—up one row and down the next—the back-breaking strain of sorting and sacking, all made the week or two that the operation occupied an event to be remembered the whole year thru.

The Hoover Diggers are noted for their unusually light draft, and are made under the careful personal supervision of the inventor. It is a point of pride with this company that no contract work whatever enters into the construction of their Diggers.

A particularly attractive feature is the fact that Hoover Diggers are sold upon a liberal trial offer, which gives the grower opportunity to test the machine before paying for it.

Details of this trial offer, together with literature describing their various Potato Diggers, Pickers and Sorters, may be obtained upon request to The Hoover Manufacturing Company, Box 109, Avery, Ohio.

The very name of some firms conveys the idea of reliability. What "Royal Baking Powder" is to the grocer, "Sherwin-Williams Paints" is to the painter or real estate owner. For years this firm has been a persistent advertiser in these columns, and we are sure every one who has patronized the Sherwin-Williams Co. has been satisfied with the goods. Why not tell your neighbor?

Among the most reliable firms in the Seed Business is the John A. Salzer

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Many thousands of dollars are thrown away annually thru the planting of worthless and tender stock thruout the Dakotas and some people we suppose will never come to see the advantages of dealing direct with only responsible firms who cater to their needs. If hardy sorts and good stock is secured all of our North Dakota farms should be comfortably situated amongst groves and surrounded by the variety and pleasures they afford. Strand's Nursery, R. F. D. 14, Taylors Falls, Minn. grow a complete assortment of stock adapted to the northwest and their catalog is well worth sending for as it contains pointers on growing of all classes of stock as well as prices. It is free for the asking.

SALZER'S SEED PRODUCE

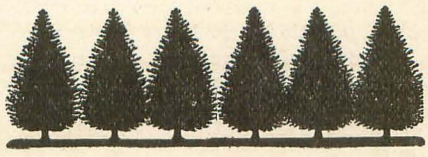
We recently saw a letter from Wm. Underwood, of Patchogue, N. Y., addressed to the John A. Salzer Seed Co., La Crosse, Wis., that has this to say:

"I planted Salzer's Independence Corn. I sold 7000 ears before the first Sweet Corn of other gardeners around Long Island was ready to eat. I sold them as high as $2.50 per 100 ears.

"I planted Salzer's Earliest Cucumber seed and first, last and all the time, I think that Salzer's Earliest are the greatest I ever saw. They are such bearers, and so fine."

USED SUCCESSFULLY FOR 25 YEARS ON SWEENY, WINDGALLS, ETC.

I have used Gambault's Caustic Balsam for sweeny, wind galls and calloused scars resulting from wire cuts and collar sores, with very best results. I have used it for the past 25 years and it always gave entire satisfaction,—JESS W. HARPER, Glenullin, N. Dak.



AN EVERGREEN WINDBREAK OF 500 TREES AT A NET COST TO YOU OF ONLY $5.00

The Gardner Nursery Company, Osage, Iowa, have been growing HARDY "BLIZZARD BELT" Evergreens for the past forty years and have found from experience that they are as easily grown as the most common forest trees. Where failures have been made they were usually caused from planting too large sized trees, or by not having ground in proper condition to receive them.

The cheapest and best way to get a successful Evergreen windbreak is to purchase from 500 to 1,000 HARDY "BLIZZARD BELT" Evergreens ¼ to ½ ft. tall and plant them out, at proper time in the spring, in a well prepared bed in your garden, and let them stay there two years, before planting into permanent windbreak quarters. Set the trees in a row across the bed, three inches apart in row and rows six inches. A bed four feet wide and sixteen feet long holding 500 trees.

Write today to THE GARDNER NURSERY COMPANY for their catalogue and their EVERGREEN WINDBREAK offer in which they give you "A TREE FREE WITH EVERY ONE YOU BUY." They prepay express charges and guarantee safe arrival to your express office. Also agree to replace any of the trees that might fail to grow at one-half price, thus standing one-half of any possible loss and you the other half, which is a fair and reasonable basis.

A PRACTICAL TOOL FOR WESTERN FARMERS

The Sioux Falls Plow Co. of Sioux Falls, S. Dak. see their advertisement in another column, are putting on the market the Queen City Wire Reel, a great time and labor saver, with which one man and a team can reel up barb-wire as fast as a team can walk. Look up their advertisement in this paper, if you are interested in a labor saving device, and correspond with this company, who will be glad to send you prices and full particulars.

FOR SERVICE RATHER THAN SHOW

F. G. Wentworth whose advertisement appears elsewhere has been in the business 27 years in South Dakota and Minnesota. His sale barn at Lake City, 30x56, is full, not a vacant stall at this writing. He has on hand a good lot of stallions and mares that ought to please any one looking for good breeding stock. There are stallions weighing better than 2000 pounds, young mares from 1600 to 1800 pounds. The mares are all due to foal early, are fine bred ones and will be sold at a very reasonable price. From $400 to $500 will buy fine brood mares at Lake City. Stallions, of good quality, big bone, good weight and the very finest of breeding can be bought at Lake City for $800 to $1200. Any one in need of good breeding stock should see the Lake City percherons before they buy. His stock is never filled for a show or for sales.

They are all in the very best of growing and breeding condition, not fatted as most of the stock that is offered for sale. He is able to show you as good or better horses, than he advertises, as it is no object to him to have horsemen come, if they are not pleased with the stock when they get them

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AN INGENIOUS DEVICE

The Queen City Wire Reel advertised in these columns by the Sioux Falls Plow Co. of Sioux Falls, S. Dak. Every farmer should have one. Look up their advertisement and note their free trial offer.

North Dakota Farmer
AND SANITARY HOME.

Entered as second class matter in the postoffice at Lisbon, North Dakota.

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Address all business correspondence to the Lisbon office.

Vol. 10 FEBRUARY, 1909. No. 8

A FEW DON'TS WORTH REMEMBERING

Don't talk of your private, personal matter.

Don't speak excitedly or lose your temper.

Don't appear to notice the inaccuracies in others.

Don't find fault, but you may gently criticise.

Don't allude to any deformity in others.

Don't betray the confidence of others.

Don't appear absent-minded in conversation.

Don't use profanity, slang or vulgarity.

Don't allow yourself to speak ill of the absent.

Don't ridicule a locality you are visiting.

Don't contradict another while talking.

Don't discuss politics or religion in company.

Don't parade the merits of your own family.

Don't pry into the secrets of others.

Don't make a promise you cannot fulfill.

Don't exhibit excitement in case of an accident.

Don't look over the shoulder of one reading.

Don't answer questions put to others.

Don't refer to a gift you have made.

Don't read letters addressed to others.

Don't pass between two persons talking.

Don't be too familiar with a new acquaintance.

FEDERAL GRAIN INSPECTION

The matter of Federal Grain Inspection is attracting a good deal of attention just at the present time, and the Bill of Senator McCumber before Congress looking towards national grain inspection is a move in the right direction. In his address before the Tri-State Grain Growers' Convention, which will be printed in full in this and the following numbers of the North Dakota Farmer, he showed wherein the farmer is being defrauded. Take for example the report on a single terminal elevator, as given by Senator McCumber, which is for the several grades of seed as shipped out as follows:

	Receipts	Shipments
No. 1 Northern	99,711.40	196,288.30
No. 2 "	141,455.10	467.764.00
No. 3 "	272,047.20	213,459.30
No. 4 "	201,267.20	
No grade	116,121.10	
Rejected	59,742.30	
Total	890,344.30	877,511.60
On hand (estimated)		12,832.70
Total		890,344.30

This shows the small proportion of higher grades received as compared with the amount shipped out, and that, while large quantities of the lower grades were received, including rejected wheat, none as such was sold. Senator McCumber points out that the profits in mixing of this elevator for three months, exclusive of the ordinary profits which come to an elevator, amounted to $83,720.69. To this there should be added also the dockage for which the farmer receives no benefit.

Senator McCumber points out the remedy for this evil and is doing a real benefit for the North Dakota farmers in bringing this matter before the people. It is hoped that the bill which he now has before Congress will ultimately be enacted into a law.

Sears, Roebuck & Co., the Chicago mail order millionaires, says the Northwood Gleaner, announce that owing to the passage of the federal pure food and drug law they will discontinue the grocery and retail drug business. It wasn't the passage of the law by congress, but the enforcement of the pure food and drug law by the agents of Uncle Sam that drove them out of the business. The fact that they cannot sell groceries and drugs successfully if the pure food and drug law is enforced certainly demonstrates that their patrons in the past got much adulterated food. It is also evidence of the general poor quailty of goods sold by the mail order houses.

SKIM MILK PAINT

Readers often ask how to prepare a good whitewash or skim milk paint that will wear well. It is said the following is excellent for the purpose.

Stir into a gallon of skim milk three pounds of Portland cement, adding, at the same time, any paint, in dry form, that will give the color you desire. The milk will hold the paint in suspension, but the cement, being heavy, will sink, therefore, it will be necessary to keep the mixture well stirred with a paddle. Mix only enough at a time for one day's use. If the mixture is not thoroly stirred, as you use it, it will get thicker and thicker, and it will be necessary to thin it by adding more milk. Six hours after applying this paint it will be dry. It is not affected by weather.

Carbolic acid or any other disinfectant can be added, thus making it very effective for use in poultry houses and the stable. It makes an excellent paint for fences when colored drab, by the addition of a little lampblack, or a dull green, by adding ochre and a small quantity of Prussian blue.

CONSUMPTION

The Public Health Laboratory at the University has recently sent out a bulletin on "Tuberculosis, Its Dissemination and How to Prevent It." The following rules should be heeded by all those who have any tendencies toward this disease.

How To Get Well

1. The person suffering from consumption must be careful to destroy his sputum. He must not soil his hands, handkerchief, clothes, bed clothes, or anything about him with his sputum. In case any of these should become soiled, they should be cleaned and disinfected at once. He should not swallow his sputum; he should not associate with other persons who have the disease and are careless about their expectoration, for by carelessness on his own part, or that of others, he may be reinfected.

2. Employ an intelligent physician. Consult him about food, drink, work, rest, amusements, exercise, and all the details of daily life, including the expediency of going to a sanatorium, or adopting sanatorium regime in your own home.

3. Don't spend one cent for advertised cures, for they never cure

4. Take the four cures:

The fresh air cure; the food cure; the rest cure; the mind cure.

5. Sleep well, don't worry, keep out of doors. Be confident that you are going to get well. Consumption is curable.

6. Don't take any liquor except on a physician's prescription.

7. Eat plenty of meat, milk, butter and eggs—all you want,—and want as much as you can eat.

8. Avoid the frying pan and its products.

9. Keep regular hours, good company and a clear conscience.

10. Your most important duty is to get well; let all other duties be secondary.

11. If your work involves long hours, prolonged and severe mental or muscular exertion, stooping position, inhalation of dust or noxious fumes, leave it if you want to get well.

BUSINESS INTEGRITY

Business integrity means character in the fullest sense of the word. It should mean uprightness of character, soundness of moral principle, honesty and probilty. Its meaning is at times perverted according to the sentiment that prevails in the community or among the people of a nation. Business integrity is shaped largely by the leaders of business and to a considerable extent by the policy of the people or government.

In looking back over the past twenty-five years one cannot but feel that the trend and tendency of business methods as manifested at times has been downward, and that public morals have been at a low ebb. This condition has been brought about, it seems to me, by the growth of cooperate interests and the unscrupulous methods employed to further their ends, left, as they have been, without proper restraint or the safe-guarding of the rights of the individual. Tariff and tariff legislation has been the curse around which has sprung up this evil; but this does not mean that protection and tariff are not desirable factors in the development of our country, but that the people, as well as the "vested interests," have a right to be heard and considered in all measures.

Too often in the past the national policy has been determined by the few who would be benefited either directly or indirectly. They have thus shaped legislation to promote the ends sought. Often the bills that have been enacted into laws have been so constructed that a few profited by their interpretation, while others were made to suffer, or, as Congressman Adams once said with regard to such legislation:

"The highest art in defeating laws is to draw them with cunning ingenuity that, while bearing a fair countenance, they shall carry in every line and section the seeds of disaster in the courts."

The awakening that has sprung up among our people during the past few years leads us to feel that the pendulum has swung to its limit and that the power and wealth, centralized heretofore in some measure returned, or at least diverted to the people. Where there have been cooperate interests without safeguards we have often found at the helm and in the leading positions in those companies men employed who could most successfully thwart the public will, as manifested either by the minority or majority, providing it proved displeasing to the "interests." Such tendencies are deplorable and must, sooner or later, if allowed to continue, lead any community or nation to ultimate disaster.

Surroundings, such as I have indicated, means the training up of young men, not with high ideals as to right and wrong, but rather in the methods which have come to be known as "high finance." the pace of which has been set by a few cooperate interests, or, rather by some of those who have managed or mis-managed such interests, and these have sought and employed the brightest minds that could be found in the various lines, and, too often, when once brought under the influence of the interests, they have come to feel that: "The ox knoweth his owner, and the ass his master's crib."

At this time we should not forget that the guiding principle which ought to govern the relations of man with his fellowmen, or nation with nation, in all those social, political and moral questions, which constantly confront us, is to seek after the truth. We should not forget that character building should then be the great ultimate in all education, but character building must go hand in hand with other essentials, and one of these is learning to know thyself. In learning to know thyself there comes a personal responsibility, a feeling of self-reliance, of independence and individualizing of one's self from the mass, and determination to stand upon our own feet. Until this time comes, one is not a true man and does not grasp the first essentials of a successful life. The world is in need today of this kind of manhood, which has come to a consciousness of itself, knows its own mind, has a mind to be known, and can and will stand upon its own feet. We need such manhood in political life, in religious life, in industrial and commercial life. We need such manhood as the leaders and organizers of labor, above all, capital needs to be directed by it. The world is calling for them as never before, but do not forget what Shakespeare has well said:

"To thine own self be true."

Quietly and steadily the few men possessed of business integrity and determination to do what is right, like the three Hebrews, have ever stood for character and business integrity for shaping a new national life for us and they are leading us on to higher purposes. They have forced the combinations, illegitimate trusts, and the "interests" to recognize the right of society as represented in the masses. Universal education has made this possible. The past century has witnessed, as it were, the creation of "a new heaven and a new earth." Science and invention have changed the face of the universe. This has been made possible by the development of a new type of education which has been promoted by the Agricultural Colleges and schools of sciences in our own land by working for the masses and not for the few. Values have been changed; standards are being adjusted; view-points are shifting, until a veritable revolution has taken place in all departments of life,—political, social, industrial, economic, educational and religious. Even going to college has now a new meaning and carries with it new obligations. Says Dr. Andrew Draper:

"Going to college means at least being set loose from the control of the home and given opportunities to think and do for one's self. It means the chance to gain the power of independent and balanced thinking, under the necessity which is upon a college student to think hard for himself and keep himself straight."

Pure Food Advertisers

The products advertised below are in compliance with the pure food law of North Dakota and of the highest grade.
ASK YOUR GROCER FOR THEM.

Livestock Department

PROF. W. B. RICHARDS, Editor

AYRSHIRE MILK

By C. M. Winslow

Milk is more and more becoming a necessary adjunct to the daily food supply in the household, and it is by far the cheapest article of food placed on the table, when the amount of nourishment it contains is compared with the cost of the article. There is, however, a great difference in the quality of milk sold, both in the purity of the milk and the amount of total solids it contains. In order to have pure and healthy milk it is necessary that the cows supplying the milk should be sound, healthy cows.

The Ayshire cow produces the ideal milk for the table and for children because she is a strong and healthy cow, rarely having any disease of body, udder or teat.

At the Vermont Experiment Station stable they had 38 cows, four of whom were registered Ayshires, and at their first test for tuberculosis all reacted but six, the four Ayrshires and two others being found healthy. The Ayrshires had stood in that stable for two years without contracting the disease, which showed their power of resisting contagion. At the recent auction sale of about 10 head of Ayrshires at the Forest Park Farm, in Brandon, Vt., there was only one cow but that had a sound udder and four healthy teats.

The milk from Ayrshire cows is particularly fitted for food, being complete in itself, on account of the equal distribution of the casein and fat, making it a balanced ration, easily digested. The milk is thus fitted to the needs of children and invalids, being easily digested and readily assimilated. The milk has a pleasant taste, and an attractive look to the eye. I suggest the thought for consideration, that milk from a strong and healthy cow, full of life and vigor, may in itself impart vigor and life.

ANOTHER GREAT JERSEY RECORD

Adelaide of Beechlands Takes First Place in Completed Year's Test

R. M. Gow, New York, N. Y.

It is not easy these days to keep up with the Jersey cow. She seems to be trying to overwhelm us in every way. Things being perhaps a little dull this year in some sections of the country, she has been doing her prettiest to encourage and stimulate her admirers. One cow after another has been putting the year's dairy record a notch higher.

While we were yet discussing the great work done by Financial Congress and holding her up as possessing the biggest completed year's record, a cow away out on the Pacific coast was surpassing all records except that of Jacoba Irene, and at the close of her test exhibits the greatest record of both milk and butter fat of any Jersey that has yet finished a year's authenticated fat test. She is well worthy of getting all the honor such an achievement deserves until the next champion steps to the front; for no cow seems able to remain long in the leading position.

There are some good reasons why we should expect to see the Pacific slope produce eventually the greatest dairy record, and that that record will be made by a Jersey cow The large butterfat record necessitates a big milk production as well as a high percentage of fat. The Jersey is the cow that combines these two essentials in the most eminent degree; combined, too, with the greatest economy in feed cost. The northern Pacific coast country, with its mild and equable climate, its rich soil and its adaptability for raising the finest alfalfa, is likely to exhibit the big-milking Jersey, and with her to carry off the championship for economic milk and butterfat production.

These reflections have been suggested by the year's record of Adelaide of Beechlands under authenticated test. Altho developed and tested on the Pacific coast, being one of the famous herd owned by the Estate of W. S. Ladd, Portland, Ore., this cow was bred in the east, being, as her name implies, a scion of the Beechlands herd, bred by that honorable gentleman and stalwart Jersey admirer, the late Charles A. Sweet, at East Aurora, N. Y., the quality of whose work in breeding Jerseys has heretofore been well demonstrated in the Ladd herd.

Adelaid of Beechlands 168699 was dropped March 16, 1902, her sire being Stoke Pegis of Prospect 29121, a bull now having twelve daughters in the Register of Merit, and her dam is Adelaide's Daughter 129440, who, in private test, has a record of 14 lbs. 11½ oz. butter in seven days. Adelaide of Beechlands was transferred to the Ladd Estate January 10, 1903. She has a record of 435 lbs. 4.7 oz. fat, 8,363 lbs. 12 4-5 oz. milk, in a year's authenticated test ended June 30, 1905, and was entered in Class A, Register of Merit, on this record and a score of 88½ per cent of the perfect scale of points given her by Prof. Jas. Withycombe. Her year's test just finished was begun November 25, 1907, at the age of five years eight months, and closed November 24, 1908, conducted, as was her other year's test, under the supervision of the Oregon Agricultural College.

Her average percentage of fat for the year was 5.456, and the fat is equivalent to 999 lbs. 8.9 oz. butter 85 per cent fat. Just think of it: 15,572 lbs. milk in the year, averaging 5,456 per cent fat! It takes a Jersey cow and a good one to exhibit such a combination. If we should compute butter as was done in the dairy demonstration test at the St. Louis Exposition, the over-run for this grade of milk being 1.182, we would credit Adelaide of Beechlands with one thousand and four pounds of butter 83 per cent fat. Her tabulated record shows what a steady worker she is—over a thousand pounds milk a month. Her yield averages per month 1297.7 lbs. milk, 70.8 lbs. fat, and 8366 lbs. 83 per cent butter, and averages per day 42.55 lbs. milk, 2.32 lbs. fat, and 2.74 lbs. 83 per cent butter, for the entire year.

Adelaide of Beechlands was served March 12, 1908, so was carrying a calf during the greater part of the year. During her test she was fed 942 lbs. bran, 638 lbs. crushed oats, 268½ lbs. oil meal, 1,425 lbs. cut alfalfa hay, 1,646 lbs. clover hay, 1,208 lbs. carrots and 7,445 lbs. kale, and was five months in pasture. Under date December 9, 1908, Mr. W. M. Ladd writes: "She was not forced at all, and is in perfect physical condition."

The record of Adelaide of Beechlands came as a fitting climax to the great Jersey year just closed, and the record of Jacoba Irene, whose test will end this month, will serve as a grand inauguration of the new year and set the pace for 1909. The Jersey motto is "Excelsior."

NEVER DRENCH CATTLE

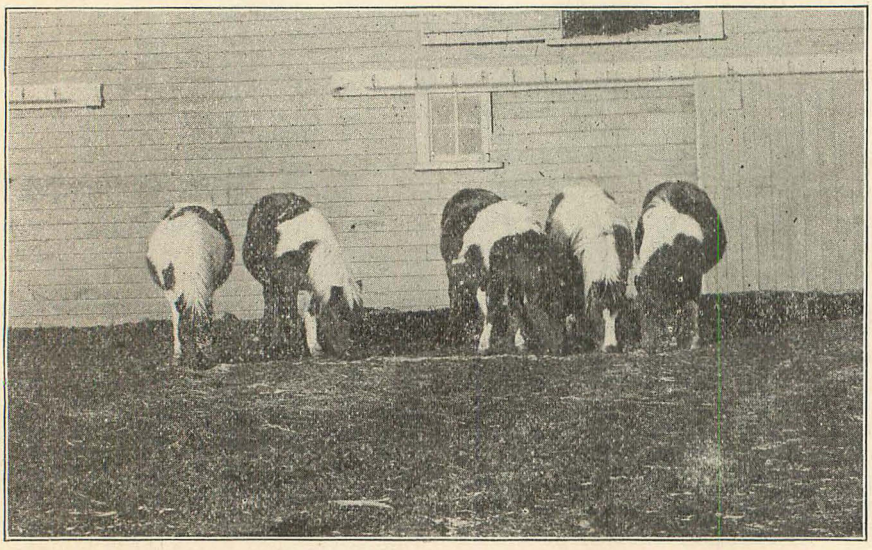
By Dr. David Roberts, Wisconsin State Veterinarian 1908

Perhaps the best way of demonstrating the danger of drenching cattle is to advise the reader to throw back his head as far as possible and attempt to swallow. This you will find to be a difficult task and you will find it much more difficult and almost impossible to swallow with mouth open. It is for this reason that drenching cattle is a dangerous practice. However, if a cow's head be raised as high as possible and her mouth kept open, by the drenching bottle or horn, a portion of the liquid is very apt to pass down the wind-pipe into the lungs, sometimes causing instant

death by smothering. At other times causing death to follow in a few days from congestion or inflammation of the lungs.

We are constantly receiving letters at this office describing the sudden death of animals that were ailing with such minor ailments as constipation or loss of appetite and upon investigation find that they have been drenched and the cause of their death being due to same. This is oftentimes proved by sending out one of our assistant veterinarians to hold post-mortem upon such animals only to find that a portion of the drench was still in the lungs; other cases where death had been prolonged and later the animal had died of mechanical pneumonia.

I do not feel that the stock raisers of this country realize the danger in drenching cattle and the enormous financial loss brought about by same.



Five Little Beauties on the Envilla Stock Farm

FARMERS' BULLETINS

The following is a list, by number, of the Farmers' Bulletins that are of interest to North Dakota farmers. The bulletins entitled "Experiment Station Work" give in brief the results of experiments performed by the State experiment stations. Titles of other bulletins are self-explanatory. Bulletins in this list will be sent free to any address in the United States on application to your Senator, Representative or to the Secretary of Agriculture, Washington, D. C. Order by number.

22 The Feeding of Farm Animals. Pp. 40.
24 Hog Cholera and Swine Plague. Pp. 16.
27 Flax for Seed and Fiber. Pp. 16.
28 Weeds: And How to Kill Them. Pp. 30.
32 Silos and Silage. Pp. 30.
34 Meats: Composition and Cooking. Pp. 31.
35 Potato Culture. Pp. 24.
42 Facts About Milk. Pp. 32.
44 Commercial Fertilizers. Pp. 38.
49 Sheep Feeding. Pp. 24.
51 Standard Varieties of Chickens. Pp. 48.
52 The Sugar Beet. Pp. 48.
54 Some Common Birds. Pp. 48.
55 The Dairy Herd. Pp. 30.
56 Experiment Station Work—I. Pp. 30.
58 The Soy Bean as a Forage Crop. Pp. 24.
59 Bee Keeping. Pp. 48.
61 Asparagus Culture. Pp. 40.
62 Marketing Farm Produce. Pp. 31.
63 Care of Milk on the Farm. Pp. 40.
64 Ducks and Geese. Pp. 55.
65 Experiment Station Work—II. Pp. 32.
66 Meadows and Pastures. Pp. 30.
69 Experiment Station Work—III. Pp. 32
71 Essentials in Beef Production. Pp. 24.
73 Experiment Station Work—IV. Pp. 32.
74 Milk as Food. Pp. 39.
77 The Liming of Soils. Pp. 24.
78 Experiment Station Work—V. Pp. 32.
79 Experiment Station Work—VI. Pp. 27.
84 Experiment Station Work—VII. Pp. 32.
85 Fish as Food. Pp. 32.
86 Thirty Poisonous Plants. Pp. 32.
87 Experiment Station Work—VIII. Pp. 32.
88 Alkali Lands. Pp. 23.
91 Potato Diseases and Treatment. Pp. 15.
92 Experiment Station Work—IX. Pp. 30.
93 Sugar as Food. Pp. 31.
96 Raising Sheep for Mutton. Pp. 48.
97 Experiment Station Work—X. Pp. 32.
99 Insect Enemies of Shade Trees. Pp. 30.
101 Millets. Pp. 30.
103. Experiment Station Work—XI. Pp. 30.
104. Notes on Frost. Pp. 24.
105. Experiment Station Work—XII. Pp. 32.
106. Breeds of Dairy Cattle. Pp. 48.
107. Experiment Station Work—XIII. Pp. 32.
112. Bread and Bread Making. Pp. 40.
113. The Apple and How to Grow It. Pp. 32.
114. Experiment Station Work—XIV. Pp. 28.
116. Irrigation in Fruit Growing. Pp. 48.
119. Experiment Station Work—XV. Pp. 30.
121. Beans, Peas, and Other Legumes as Food. Pp. 38.
122. Experiment Station Work—XVI. Pp. 32.
124. Experiment Station Work—XVII. Pp. 32.
125. Protection of Food Products from Injurious Temperatures. Pp. 24.
126. Practical Suggestions for Farm Buildings. Pp. 48.
127. Important Insecticides. Pp. 46.
128. Eggs and Their Uses as Food. Pp. 40.
131. Household Tests for Detection of Oleomargarine and Renovated Butter. Pp. 10.
132. Insect Enemies of Growing Wheat. Pp. 38.
133. Experiment Station Work—XVIII. Pp. 32
134. Tree Planting in Rural School Grounds Pp. 32.
137. The Angora Goat. Pp. 48.
138. Irrigation in Field and Garden. Pp. 40.
139. Emmer: A Grain for the Semiarid Regions. Pp. 16.
142. Principles of Nutrition and Nutritive Value of Food. Pp. 48.
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144. Experiment Station Work—XIX. Pp. 32.
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336. Game Laws for 1908. Pp. 55.
338. Macadam Roads. Pp. 39.
339. Alfalfa. Pp. 48.
340. Declaration of Governors for Conservation of Natural Resources. Pp. 8.
341. The Basket Willow. (In press.)
342. Experiment Station Work—XLIX. Pp. 32.

ST. PAUL UNION STOCKYARDS COMPANY

Report for January, 1909

RECEIPTS

	Cattle	Calves	Hogs	Sheep	Horses	Total Cars
C. R. I. & P.	275	34	1974	174	21	38
C. G. W.	1140	179	6862	338	55	124
C. M. & St. P.	4490	484	27361	2268	104	511
M. & St. L.	1538	236	13746	1670	3	239
C. St. P. M. & O.	3289	203	29833	157	44	470
C. B. & Q.	313	12	2683	819	.....	48
Wis. Cent.	88	6	949	.....	2	14
M. St. P. & S. S. M.	2236	595	7531	1149	1	176
Gt. Nor.	6552	1413	25388	8815	11	570
Nor. Pac.	2669	235	4491	17975	39	229
S. Y. T. Ry. Co.	.....	.....	.....	.....	.....	.....
Driven in.	505	28	584	1143	.....	.....
Total	23095	3425	121402	35924	280	2419
Total Last Year	16434	2854	176647	16224	168	2663

SHIPMENTS

	Cattle	Calves	Hogs	Sheep	Horses	Total Cars
C. R. I. & P.	1924	9	404	.....	.....	65
C. G. W.	1968	117	4920	2723	.....	113
C. M. & St. P.	1551	30	11392	1227	19	150
M. & St. P.	720	6	.....	.....	.....	22
C. St. P. M. & O.	1530	9	5517	3114	23	108
C. B. & Q.	4288	69	9019	17815	.....	299
Wis. Cent.	23	3	.....	.....	.....	1
M. St. P. & S. S. M.	503	14	.....	288	20	24
Gt. Nor.	310	103	.....	1219	49	22
Nor. Pac.	208	78	433	732	74	21
S. Y. Ter.	.....	.....	.....	.....	.....	.....
Driven out	1085	239	83	297	92	.....
Total.	14110	677	31768	27415	277	825
Total Last Year.	8467	621	47070	8233	171	657

Summary 1 Month

RECEIPTS	This Year	Last Year	SHIPMENTS	This Year	Last Year
Cattle	23095	16434	Cattle	14110	8467
Calves	3425	2854	Calves	677	621
Hogs	121402	176647	Hogs	31768	47070
Sheep	35924	16224	Sheep	29415	8233
Horses	280	168	Horses	277	171
Cars	2419	2663	Cars	825	657

STOPPAGE AT THE POINT OF TEAT

By Dr. David Roberts, Wisconsin State Veterinarian, 1908-7-8

A very common trouble in the ordinary dairy herd is to find an animal with the point of the teat closed, either due to a bruise of the teat itself or to infection of the milk duct which causes a little scab to form over the point of the teat and unless this is properly handled with care and cleanliness, the infection is apt to cause a loss of the entire quarter.

The proper manner in which to handle and treat such cases is to thoroly wash the teat in an antiseptic solution, then dip a teat plug into a healing ointment and insert it into the point of the teat, allowing same to remain from one milking to another. In this manner closure of the point of the teats can be overcome in a very simple and satisfactory way.

Never use a milking tube if it can be possibly avoided as there is much danger of infecting the entire quarter by the use of the tube.

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Special Prices at Envilla Stock Farm of almost every kind. Write for a list to Cogswell, N. D.

DAIRYING AT THE AGRICULTURAL COLLEGE

The committee sent by the Agricultural College to investigate the dairy equipment at the agricultural schools in Minnesota, Wisconsin, and Iowa recently handed in its report. The rapid increase in the value of the dairy industry in the three states named is due in large measure to the important part the state schools have played in the training of men qualified to get the most possible out ofthe industry. Wisconsin alone, in 1906, produced 125,000,000 pounds of butter having a value of $35,000,000 while its cheese returns for the same year added $17,000,000 to the account. The dairy products of the state exceed by $3,000,000 the total income from wheat, oats, barley, flax, and potatoes. The creamery butter alone in the state of Iowa had last year a valuation of $28,000,000 while that of the crops above named totaled $55,000,000. In 1906 the North Dakota crop was valued at $81,000,000—a crop consisting largely of wheat, flax, and barley, all of which draw heavily on the fertility of the soil. The committee, consisting of H. R. Hartman, Jas. B. Radford, and G. L. Tibert, say in their report, "Climatic conditions in Minnesota and North Dakota are about the same, the people are of the same stock, and we can see no reason why the dairy cow should not become as great a source of revenue to the farmers of North Dakota as to our sister state across the Red, where the annual output has increased from $6,000,000,- in 1890 to $41,000,000 at the present time, and where Prof. Hecker of the Minnesota Agricultural College, managing the college herd, reports that he has been able to secure a return of $2.24 for every $1 expended for fodder.

To rightly equip the farmers of the state for the changing conditions it is necessary that hundreds of young men thruout the state be trained in the best methods of commercial dairying. This will call for an adequate equipment, consisting of a creamery, dairy barn, and dairy herd, together with the employment of a professor of dairying. Both long and short courses in this subject will be offered and in the near future. The dairy department promises to become one of the leading features of the Agricultural College.

Poultry Department

Mrs. B. F. Wilcoxen, Ft. Des Moines, Ia.

A NEW IDEA IN ROOSTS

For a small flock of chickens I think there is nothing so convenient for roosts as old wheels from a buggy or wagon. Set a post firmly in the ground, the upper end cut to fit the wheel. The fowls cannot crowd each other for the highest perch, and, best of all, the wheel is so easily lifted off and taken outside to whitewash or treat in any way to get rid of lice and mites.

There is no "best breed" no "best" way of feeding or hatching or breeding or housing, it all depends upon circumstances surrounding us, such as the location, climate, soil, and the prevailing winds. In some of the western states the wind is so strong that we cannot have the open shed or curtain front, but the atmosphere is more dry, and the chickens do better, less subjected to roupy conditions which are so prevalent in the central and eastern states. A great deal depends upon the market. Every one of these things has a bearing on success or failure. But the most important thing is the character of the person engaged in the business of poultry raising. We have to be capable of managing well. This is true in all vocations of life. Without it we are doomed to failure and this is more noticeable in the poultry field where the little things count for so much and upon them the future is hinged.

In this we must have a system, a time for all things, we must take advantage of our opportunities, must keep a strict account and it is well to ask ourselves the question everyday: "Are we making this pay? If not. Why?" If things are going wrong, investigate and set them right. It may be that the fowls are droopy. Remove the cause. In order to be successful we must have a strong vigorous flock free from disease from the foundation. If the fowls are healthy and not laying many eggs, feed heavier. We may feed at a loss at first, until we get the hens started to lay. Some hens may sit on the nest for weeks, never laying. Set them or else get them to lay again. A good plan is to take them and put them in yard without any nests and with one or two good male birds.

To be successful in the hatching and rearing season we must follow close to Nature's ways. It is not so much the feed as it is the care bestowed upon the young. They should have good clean quarters, tight coops so no vermin can enter. We learn by doing. We can profit by the experiences of others. Again let us bear in mind that no flock will pay unless healthy and vigorous. If your fowls are often sick while those of your neighbors appear in good health, both having good management, it indicates a constitutional defect of some kind and lack of vigor. It requires too much time to attempt to breed vigor into such fowls and nothing short of complete change of stock can effect a cure.

It requires the same degree of intelligence and energy to make money out of the poultry as in any other business. While there are handsome profits in the business for the person who goes at it right, money doesn't force itself upon the man or woman who is in the business.

It is not fair to condemn the incubators and brooders, but it is quite proper to condemn the way in which many of them are managed.

Do not stuff the hen with corn and expect her to lay a lot of eggs. Corn makes fat and should only be used in balancing the ration. Even good hens eating good food disappoint their owner if he does not give them the proper attention. Poultry raising is but a side issue on many farms. In fact it is even side tracked on too many of them.

A great many farmers' wives keep poultry only to furnish the table with fresh eggs and wholesome poultry. Any boy or girl on a farm should not have to go to the city for employment. They can develop a marvelous industry right at home and conduct it in a financial way.

There is a great chance for improvement and advancement along this line, for the farm I think is best adapted to the raising of poultry for eggs. If the home market is not incentive one can ship his eggs. I have been getting thirty-five and forty cents for eggs all winter.

The breeding of fancy poultry is very fascinating. One can start in a very limited way with a few fowls and chuck the returns all back into the business for a time to build it up. It takes earnest work to obtain financial gain. There is beauty in the even colored flock and a pleasure derived from breeding them season after season. The farmer boy or girl is missing a great opportunity when they neglect the care of the poultry on the farm. I would like to hear from all the farmers' wives and daughters as to their success or failures in the poultry culture. Write and tell us as we all can profit from failure as well as success. Tell us how much you have made from your flock in the past year, and let us make the poultry page a live one.

At the present time egg production can be carried on successfully almost any place as the shipping facilities are excellent. If one is near a city market that is where the prices soar for poultry products.

FEEDING MEAT TO FOWLS

Too much meat either ground or fresh is injurious as it causes bowel trouble. It may be fed three times a week if it is dried and twice a week if fresh butchers meat is given. One pound of fresh, chopped meat is about the proper quantity for fifteen hens and half a pound of ground meat answers for a meal, mixed with other food for the same number. If preferred the ground bone and meat may be given twice a week and the fresh once.

OILS, PAINTS, AND PAINT PIGMENTS.

WHAT IS GOOD PAINT.

Charles E. Koons, in American Paint and Oil Dealer

The question, "What is good paint?" involves many factors. From the viewpoint of the manufacturer, good paint must satisfactorily answer the particular and stated purpose for which it was made and sold. It may fail, however, in nine cases out of ten, with the man who uses it, because it is not a "cure-all" applicable to any and every class of work, and in any and all kinds of weather. Notwithstanding the "lack of confidence" in prepared paints expressed occasionally in some quarters, the paint manufacturer labors instead under the apparently general belief that any good general or special purpose paint should meet any painting purpose, and that, too frequently regardless of surface, weather and working condition which would make a good job impossible, even with exactly the special paint for that special purpose. There is no one paint manufactured that will answer for all kinds of work, no matter whether straight lead and oil goods or specials that carry advantages in working and wearing properties; neither is there any made that will work just the same in both wet and dry weather. That would be unnatural and impossible.

The "deviltries" of paints are just as numerous as those of varnish, altho this is not generally recognized, and the paint is condemned instead of being given the consideration, or the "benefit of the doubt," that is generally and properly given any reputable varnish by the intelligent painter or dealer. Thus the paint manufacturer suffers becuase the sun did not shine, and because the rain did not cease pouring when the paint was applied, and because of a thousand and one other happenings that most painters are too glad to take advantage of in the case of paint in order to lay the blame on the paint rather than their own negligence, or unforeseen changes of weather. I sometimes think that while paint legislation is being agitated, it would not be a bad idea to require manufacturers to make a sunshine product, a rainy-day paint and a fool-proof paint, all of which every dealer would have to keep in stock for any emergency. There has been paint legislation even less sensible and just.

Another evil that causes good paint to fail is unseasoned timber, also moist and damp walls, amonia fumes from stables and alleyways, the sulphur gas from coal smoke. City work especially is most affected by these sulphur fumes, but they are prevalent and very injurious anywhere, especially along railroads and around factories, and in the natural gas regions, etc.

From the standpoint of the practical man there are three general essential requisites of a good paint:

First—It must show for itself. It must look good for this is what the dealer depends on to get him his trade. One job brings another. Not only must it look right after the job is finished, but it must hold up a reasonable length of time without diming or fading away. This causes more loss of business than anything else; stability of color proves that the pigment is good and all that is necessary to make good pigments into good paint is to use good oil. However, there are many good-lookers in the paint line that are very deceptive, and these get the paint into more trouble than anything else connected with the business, for delicacy and richness of color appeals to the novice as something seemingly good because it looks good, but alas that is about all you can say for it. It does for a while as a thing of beauty, but soon dims away to the original base, and becomes a sickening shadow of its former self and then the paint and the manufacturer "catches it."

The women folks are partly to blame for a great deal of this kind of trouble, on account of the fads that start here and there thru the country to match some dyed dress goods for house colors. They want it and it starts a demand for a shade which is then placed on the color card. After a great deal of exasperating experimenting to match a dye with a safe paint pigment, you who are practical know how impossible it is when durability is to be considered, yet this is staggered at and is partly accomplished as far as the color is concerned—but look out for the durability.

Further paint legislation should require the ladies to assume the blame for the paint failures resulting from the use of such colors, tho in the meantime those manufacturers who still cater to such whimsical ideas must be reconciled to the injury that comes to their business thru such failures.

The second requisite of good paint is a very necessary one—a good paint must work well and cover well.

This pleases the painter because it lessens the number of coats he must use to make a job, which necessarily cuts down the cost of the work.

The liberal use of the "inert" pigments, silica, barytes, etc., always lessens the body, i. e., the opacity, of any paint, altho it may add to the durability in some cases.

The third requisite is the main thing about a good paint—It must wear. Without durability it is worthless as a protective, the first office of paint. It may be coarsely ground—altho it is better if finely prepared—and it may lose its first brightness, still if it is durable it accomplishes the main thing for which it was prepared.

So, color, body and durability are the three leading requisites for a good paint, to which might be added richness, fineness and durability of finish as well as the long service of the paint as a protective.

But from the view point of the average house-wife anything is good if the color is flashy and the paint dries quickly, no matter what is sacrificed to attain this end.

Pleasing contrasts, harmony and durability are lost sight of when the novice dictates what shall be done in painting the house; the results of professional study in color schemes are thrown to the winds, and harmonious blending and taste are brushed to one side with butchering of the formula by improper mixing with japans to secure quick drying and "have it done with." Frequently the painter himself has no choice and the job has to be done as quickly as he can push it thru. Instead of having the most time to do his work, he has the least, and this all to please his patrons, tho in the end they are displeased. It is a shame that the painter is so hampered while every other mechanic can take all the time he wishes and some more than

is necessary. Who ever heard of a plasterer or a plumber being ordered to finish at a certain time? Yet the poor painter has to get thru no matter whether it rains or shines or what has to be sacrificed; as a result good paint is spoiled, and good workmanship replaced by skip and hurry tactics, that will surely show up later on the job, and with no one to blame but the feminine boss of the house.

It takes time to do good work, and the longer the time between coats to give thoro drying, before the next coat is applied, the better. The coats applied before being thoroly hardened, are not two coats at all, but only one worked into the other, softening the first coat so that it amalgamates into one mass of thick, mushy substance, that necessarily causes cracking, peeling and flaking of the paint oftener than it can possibly give good durable service; and then the painter is blamed for the poor job, and he in turn blames the dealer, who promptly blames the manufacturer, who has to square things with everybody "or he needn't try to sell paint any more in that town, etc." tho he knows, and the intelligent dealer and the painter know, that if that same paint had been used properly and plenty of time given the work satisfactory results would have been secured.

Shade Trees and Gardens.

C. B. Waldron, N. D. A. C., Editor.

BAND OF ANGORA GOATS TO LABOR FOR PERMANENT IMPROVEMENT OF NATIONAL FORESTS

Three thousand angora goats herded out on the brush-covered foothills of California are going to do some hard work for Uncle Sam during the coming years beginning this spring. The experiment will be unique both as a stock raising proposition and as an engineering and tree culture problem.

The little white animals whose long wool is of such great value are going to be put to no less a task than constructing mile after mile of fire line thru the bushy chaparral growth in the National Forests, saving much labor by the United States Forest Service engineers and making way for forestation by merchantable trees. Not the least important feature of the experiment, which for the first two years will be confined to the Lassen Forest, is the fact that the task will be performed during the regular grazing by the goats which will not even realize they are doing a valuable work.

Plans for carrying on the work are outlined in a cooperative agreement drawn up by the Forest Service and the owner of a band of angora goats grazing on the Lassen National Forest of California. The scheme is to run fire lines parallel with the contour of the slopes by cutting trails about eighty rods apart. These trails are to serve as guides for the angoras. They will graze in each direction from the trails, killing, it is estimated, a strip of brush about 300 yards wide. The wide lanes cut out and grazed by the goats will serve as ideal fire lines in protecting the forest covered lands lying beyond and around the chaparral areas, and also make a place for reproduction of merchantable trees.

For the past two years the government has been carrying on permanent improvements in the National Forests on an extensive scale, and the construction of fire lanes and trails has been one of the most important features of the work. The task of clearing the ground and providing land for good forest trees is, however, perhaps the most important benefit expected to come out of the experiment.

The proposed work of the angora goats may finally solve the chaparral problem which has been troublesome in the state of California for many years, The bushy chaparral growth chokes out seedlings of valuable commercial trees which may get a start and when dry is one of the worst kinds of fire risks. Often a small blaze which starts in it gains such headway in a few minutes as to travel hundreds of yards and lick into valuable stands of merchantable timber.

The protection to be afforded by the goat-built fire lanes, therefore, may at last bring relief to the state, which in the past has had its full share of timber loss thru destructive forest fires. At the same time, a large amount of chaparral will be killed out to make room for the growth of good trees that produce lumber. If proven successful at the end of two years the work will be carried to National Forests in other sections where chaparral has choked out good forest trees and created a dangerous fire risk.

COMMERCIAL ASPECTS OF TREE-PLANTING

C. B. Waldron, Horticulturist, North Dakota, A. C.

It sometimes takes a live sport to bring out a point that otherwise might remain hidden indefinitely. Some five years ago two festive American citizens in the vicinity of Walhalla entertained different opinions as to how much wood could be cut from a certain acre of natural timber. The timber in question consisted of the much abused and despised White Poplar, only that and nothing more. It had been encumbering the land for a period of eighteen years, that is to say, on a certain dry autumn day eighteen years before, a fire had swept over the land cleaning up every festige of living vegetation. From the roots of the poplar trees that had been consumed by fire new trees sprang up as thick as the proverbial hair on the traditional dog. At the end of eighteen years they had waxed and grown fat to the extent that one of these aforesaid sportive citizens ventured to guess that there could be 75 cords of 4-ft wood cut from a single acre. His opponent offered to give substantial backing to his own opinion that there would be somewhat less. The wager was accordingly laid, the stakes being deposited with the village deacon, who was put under bonds not to go over to the Canadian side until after the wood was cut. The acre was then measured off and with the aid of a bunch of half-breeds who saw in rapt vision sufficient smoking tobacco

SCHEDULE FROM MARCH 15 TO 27

Fessenden,	March 15,
Harvey,	March 16,
Drake,	March 17,
Carrington,	March 18,
New Rockford,	March 19 & 20,
Tagus,	March 22,
Rose,	March 23,
Williston,	March 24,
Donnybrook,	March 26,
Flaxton,	March 27,

to last them for the balance of the winter, was quickly reduced to 4 ft. cord wood. After being piled it was measured by a reliable committee who reported the product of the cut to be exactly 90 cords. The money was accordingly paid over and the deacon duly released from his bonds. The half-breeds had been paid 50 cents per cord for cutting and putting the wood in piles and piling the brush. The wood was sold on the ground for $3.50 per cord, making the total net income of the one acre tract $270.00

The moral of this story is that this acre produced an annual net income during the eighteen years of $15. per acre. The writer of this tale was upon the land when the wood was being drawn off. He was also there three years after and made the rash attempt to drive across the tract with a heavy farm team and a pair of bobsleds. The three year trees which had grown up since the wood was cut were so large and thick that the team was unable to make its way across. It is fair to presume that at the end of another eighteen year period a like amount will be cut, only in that day the wood will being $500 net instead of $270. The white poplar can be grown anywhere in North Dakota. Young trees should be set four feet apart each way. Some benighted farmers are grubbing out these white poplars to prepare the land for wheat on which the annual net profit is less than $5 per acre. And still we send missionaries to China.

SELECTION OF SEED WHEAT

Ray S. Towle, N. D. A. C.

The selection of seed wheat is the problem that is very likely uppermost in the minds of the North Dakota farmer at the present time. The selection should be made in the fall but in as a large proportion of farmers have already sold the greater part of their grain and often times the best, the selection in these cases must be made from the bin, whether it be from your own, or buy from some one else.

Always select fully matured grain for seed. Immature seed even if it grows will usually produce a weak plant. Grain that has been wet and subject to freezing and thawing, or has become heated in the bin, is also likely not to grow and should not be used without a thoro test. Only plump, medium-sized seed, free from weeds should be used. The small shriveled kernels lack vitality, and are not likely to produce a strong plant, while the largest seed has also been proven to be often lacking in vitality and fails to produce healthy plants even if it germinates. One can never expect to rid his land of weeds if he continues to sow them with his grain. To secure the right kind of seed the use of the fanning mill cannot be too strongly urged.

To many it would seem that this subject of cleaning the seed has been dwelt upon enough already, but thruout the country any number of cases can be found where farmers buy socalled seed, in which nearly every kind of weed seed known in the state can be found in one handful of the grain. The only remedy is the farming mill, and if running once thru does not take out all the weed seed or shrunken kernels, run it thru again. If this is done one should get uniform seed in which the danger of introducing dangerous weeds is reduced to a minimum. In this case the average number of kernels per bushel will have been decreased and naturally more seed will be necessary per acre. It has been proven to by the agricultural experiment station that the average amount of seed sown to the acre in North Dakota is already too small and that one is more sure of results if he sows at least 1¼ bushels of seed instead of one bushel as many do.

VEGETABLES UNDER GLASS

By F. Gibbs.

(Paper read before Minn. Horticultural Society.)

To lengthen the vegetable season, glass is an important adjunct. The shape of the hotbed yard must depend on your location in regard to shelter. Tho the shape makes little difference if it is protected from the north and west winds and has good drainage. If you can also have an east windbreak without shutting out the sunlight, so much the better. About

Dec. 1 the fresh horse manure for hotbeds is gathered, but instead of piling it, it is spread out thin over the entire yard. The second time over, alleys are left every 16 feet north and south. The manure is spread in this manner till Jan. 1, when it is about one foot thick. It can now be piled on till it is 3 feet thick and allowed to heat.

Snow is shoveled out of the alleys into the manure to keep them free from ice. When one block is filled, the alleys are abandoned and are filled with hot manure from each side, which soon draws the frost out of the ground, and the beds may be put down. We begin at the north side of the yard and pitch over from the pile enough manure to put down the first row of boxes. This clears about 6 feet of ground. By following this method none of the manure has to be pitched over 6 feet. By having the ground all warm, one-third less manure is required than when beds are put down on frozen ground.

Starting Jan. 1, successive crops of lettuce are sown every week. Lettuce is large enough to transplant in 14 days. When the first house is planted full, the other has been warmed and dirt prepared so there is no delay in transplanting. The first week in February lettuce is transplanted the second time and given more room. They make better plants if twice transplanted.

March 15 is early enough to start cucumbers for the beds. The seed is sown in boxes and plants transplanted in 4-inch pots and again removed May 1 to the sash—one hill to the sash; four lettuce plants having been left out of the center for the cucumber plants. After the lettuce crop is cut, the ground is mulched with fine manure and the cucumbers given the entire sash, which they are not slow to fill. The sash are not removed except for ventilation till the nights are warm, early in June.

It is well to plant some of the sash to radish about the middle of March; when they are sold the sash is put back where the radish were and cucumbers forced under them. As sash do not belong to a labor union, they do not object to doing double duty.

When the cucumbers are done bearing, immediately pull up the vines and pile the dirt for the next year, and as nearly as possible remove the rotten manure that was under the beds to the field. I like it for onion ground, as it is entirely free from weed seed.

PLUM CULTURE

One fruit especially adapted to North Dakota situation and condition is the common plum. This plum in its wild state reaches its greatest perfection in the north. It is very valuable and on this account numberless varieties have arisen, which are of great horticultural value. As we select and propagate from the better varieties there is no question but what more and even better sorts will appear from time to time. The improvement made at the Experiment Station during the last 15 years is such as to indicate that anyone who will take the trouble to grow this plum in quantity from seed is pretty sure to acquire a number of new and more or less valuable strains. There are at the same time many varieties offered by the nurserymen that are hardy and better when given reasonably good cultivation. Good loam soil, such as is suitable for growing agricultural crops, will grow plums. In selecting a place for this product one should avoid light, marshy, gravel soils, and also the situation with a south slope. An ideal site is a northeast slope having a deep porous but rather heavy soil. One should plant two or three year old trees which have been headed rather low. They should be pruned in such a way that the trees will not fork out as they grow older. They should be planted about ten feet apart each way. A convenient distance is eight by twelve feet. This leaves room to drive among the trees for mulching and other purposes, as with all other trees and plants this should be done in the spring. Among the hundred or more varieties offered we have found the DeSota, Wyant, Surprise and Forest Garden to be as desirable as any. Plum likes a cool shady soil and for that reason we rely upon mulch more or less especially while the trees are young. We find it a good practice to cover the ground with about two inches of half rotten chaff from an old stack bottom. This affords a good mulch and still does not prevent an occasional cultivation. It is very important that the trees be well mulched late in the fall so as to prevent root killing. Young trees should also be protected by wrapping the body with a narrow strip of burlap to prevent gurdling by mice and rabbits. The trees will also need some protection against the winds especially those from the south and west. If the wind break is planted at the north it should be far enough away so that the snow does not drift against the trees. The plum requires almost no pruning aside from correcting an occasional straggling habit of growth. One can well dispense with pruning all together. A disease very common with the Wild Plum but yet not as apt to occur where trees are planted out singly

and have free circulation of air about them, is the Plum Pocket or Bladder Disease. This shows itself by more of an abnormal inflated development of the fruit. There is no particular remedy except to avoid planting the trees too close together and in the immediate vicinity of large groves of any kind. The disease is propogated from germs and these will grow upon the tree only when it is damp. For this reason a free circulation of air prevents a spread of the disease. The demand for this fruit is always good, exceeding the supply. The market price seldom falls below $2.00 per bushel. At this price a healthy productive plum orchard, such as most any farmer may have, is not only a source of pleasure but a means of some revenue as well.

Home Affairs

Katherine C. Neilson, Editor, Mayville, N. D.

NORTH DAKOTA

(Tune: America)

ROSS J. HUTSINPILLER, OAKES, N. D.

My North Dakota land,
Sweet North Dakota land
The Prairie Queen.
Where farmers brave reside,
Thou art a nation's pride.
With thee I would abide,
The Prairie Queen.

Thou art my native land,
With thee I take my stand,
Thou'rt great I know;
I love thy fields of grain,
Thy cattle on the plain,
Thy summer's dew and rain,
And winter's snow.

Our Father, hear today,
While earnestly we pray:
God save the State;
In greatness may she grow,
No evil let her know,
Thy goodness may she show,
Lord, keep our State.

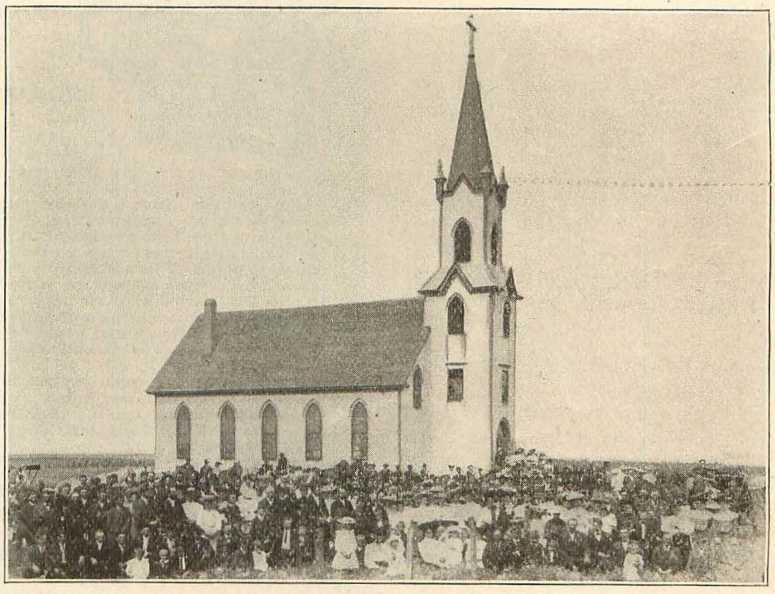
CAPACITY OF A WAGON BOX

A subscriber asks: How many bushels of grain will an ordinary wagon box contain. Answer: A common wagon box, says Farm Crop, is a little more than ten feet long and three feet wide, and will hold about two bushels for every inch in depth. If the wagon box is eleven feet long, multiply the depth in inches by two and add one-tenth of the number of bushels to itself. Or, as the opposite sides are parallel, multiply the length inside in inches, by the breadth in inches, and that again by the depth in inches, and divide the product by 2150 cubic inches, which is the number of cubic inches in a bushel.

Example:

Dimensions of wagon box: width, 36 inches; length, 120 inches; depth, 24 inches.

Answer. Number of bushels contained by wagon $(36\times120\times24)\div2150=48.22$ bushels.



At the Dedication of a North Dakota Church

The tourist left the train at every station and went ahead to the baggage car to ask if his trunk was safe. "Are you quite sure," he asked the baggage man for the sixth time, "that my trunk is safe?" "Begorry, I wish that the Lord had made ye an elephant instead of an ass," was the exasperated reply, "and then you'd always have your trunk in front of you."

DESCRIPTION AND COMPOSITION OF EGGS

Hens' eggs range from the small ones laid by bantams to the large ones laid by such breeds as Light Brahmas.

On an average a hen's egg is 2.27 inches in length and 1.72 inches in diameter or width at the broadest point and weighs about 2 ounces or 8 eggs to the pound, the eggs of pullets are smaller than those of old hens, those of ducks larger, turkeys and geese considerably larger. Guinea eggs on an average measure 1.87 by 1.5 inches each, are rather pointed at one end and weigh 1.4 ounces each or 17 ounces to the dozen. Goose eggs weigh about 5.5 to 6.7 ounces each, or about 5 pounds to the dozen, more than three times as much as hens' eggs. The eggs of wild birds are much smaller than those of the same species when domesticated. Domestic ducks' eggs are 2.36 to 2.56 inches in diameter.

Composition

The shells of hens' eggs constitute 11 %, the yolk 32% and the white 57% of the total weight of the egg.

By analysis, eggs consist chiefly of two nutrients, protein and fat, in addition to water and mineral matter or ash. In composition, eggs of all sorts resemble such animal foods as meat, milk and cheese. The yolk contains considerable fat and ash, while the white is practically free from fat and has a very small ash content. The white contains less protein and about twice as much water as the yolk. As shown, eggs are nutritious food, they have more water than cheese, but are more concentrated than milk or oysters.

Egg yolk contains a number of different bodies, about 15% proteid 20% fat and .5 coloring matter, 1% phosphoric acid and such chemical elements as calcium, potassium and iron in the form of salts.

Egg yolks in abundance are often prescribed to supply a very nutritious food for invalids. The shell of the egg is porous and the micro-organisms which cause the egg to ferment—rot or spoil—gain access to the egg thru the minute openings.

Eggs which are perfectly fresh have the finest flavor, even fresh eggs are not always satisfactory, since it is influenced more or less by the character of the food they have eaten. Onions can be fed to excess until the flavor becomes so pronounced that eggs cannot be used.

Boston markets favor the brown-tinted variety, while N. Y. the white-shelled eggs.

Tests from different states, in the Experiment Stations find no uniform variations in the chemical composition of the brown or white-shelled eggs.

The yellow color in the yolks depends upon the presence of green food in the rations, pale-colored yolks indicate such feed is deficient.

Silver is quickly turned dark by air containing sulphur fumes. The forks and spoons in contact with eggs at table turn dark by the sulphur liberated from the egg white when it is cooked.

Eggs are easily digested either raw or slightly cooked.

Hard-boiled and fried eggs require 3½ hours for digestion in the stomach, soft boiled 3 hours, roasted 2½ hours, raw eggs whipped 1½ hours. They are an important article of diet in the American household.

When eggs are 15 cents per dozen, 10 cents expended for this food will furnish 1 pound total food material, containing .13 pound protein and .09 pound fat. At 16 cents per dozen, fairly expensive, at 25 cents very expensive.

A reason for their popularity is less time to prepare them for the table and less fuel where gas is used. Poached eggs are those removed from the shells and cooked in water.

One scientist recommends hot salted water in which a very little vinegar has been added. The vinegar or (acetic acid) tends to precipitate albumen and prevents some of the egg dissolving in the water and improves the flavor.

The total number of ways of cooking eggs is very large, in hot waters and fats. Among the many ways are baked in the shell, steamed, baked in fat, boiled, omelettes, scrambled, fried, souffles, rolled in wet paper and roasted in a camp-fire, garnishes, custards, salads, pressed meats and pickled, as a medicine, as a cleanser, as a leavening power in cakes, like sponge cake and the deliciously flavored "Old Time Pound Cake." The French have 150 ways of cooking eggs. Their method of frying eggs is more complicated than ours. They are always served in individual plates or cups, fried in butter, salt and pepper with a little cream cooked with them, a drop of vinegar is added before serving.

Curried Eggs

Hard boiled, removed from the shells, one end sliced off so they will stand upright on a platter. A white sauce is made, a little parsley added, green or dried, and curry powder, pour the sauce over the eggs and serve. More of these recipes will appear.

Eggs suggest salads as spring comes, the season we crave a change of diet. Fruit salads are in order at present.

Salad Dressing that will keep several weeks.

1 cup of vinegar
½ cup of sugar
1 egg
1 teaspoonful mustard
1 tablespoonful flour
1 tablespoonful butter.

Sprinkle with red pepper and tumeric powder and celery salt (or curry powder). Cream butter and flour, (put vinegar and sugar over to boil) add egg and other ingredients to the flour and butter and cream well togethr. Stir into the hot vinegar. Let this cool slowly.

To use—Whip thick cream (sour) for fruit salad and add two or three tablespoons of the salad mixture. Mix this as you need for the table.

Meat is high in price and advancing, who can afford eggs better than the farmer? Who deserves better food than the grower?

FROM THE NATION'S CAPITOL

By GUY E. MITCHELL

TYPE AND COLOR OF THE MODERN JERSEY

It is the common error of judges at dairy shows and even of some breeders to pass over Jerseys which show a great amount of white in the color and more especially owing to the position in which the white patches are placed. Cows of this class are called grade Jerseys, for as a rule we are accustomed to see any white patches confined to the flanks and underneath portions of the animal's body; in one instance a Jersey with a large patch of white on the shoulder, a large star on the forehead, and a considerable amount of white on the right thigh and flank, won first place in competitions of considerable consequence, was First and Champion in the Jersey Cow Classes at the Oxford County Show in England and is the property of that well-known breeder, Lord Rothchild. Here in our own country we have a Jersey cow with a streak of white extending right from underneath the forearm to the shoulder, and yet it was the Grand Champion in the Jersey Cow Class at the United States National Dairy Show, held recently in Virginia.

As a rule one prefers to see whole colored animals winning first places in Jersey classes; but if we bear in mind that only about 10 per cent of the

original cows placed in the first Jersey register, in the Island of Jersey, were without white markings, we will not be surprised when an animal of undoubted pedigree is presented bearing white marks. Do what we can to breed whole colored animals, now and again our very best cows will throw back and give us calves showing a considerable amount of white.

SECRETARY WILSON TO STAY

It was announced on good authority, that President-elect Taft has decided to retain Secretary James Wilson of Iowa as head of the Department of Agriculture. It is stated that this decision was made shortly before Mr. Taft left for Panama. Much satisfaction is expressed in Congressional circles over this action, for not only had the members of the Iowa delegation written a strong letter to Mr. Taft, but a large number of members of the House and Senate, without being asked to do so, had written urging that Mr. Wilson be reappointed.

This decision likely means that Secretary Wilson can stay at the head of the Department of Agriculture as long as he desires to stay. March 4 he will have been in the cabinet twelve years. How long he will remain one cannot predict for at the age of seventy-four he is as hale and hearty with as great a power of endurance as any man in public life in Washington.

The Department of Agriculture has made great strides since Secretary Wilson took charge at the beginning of the first McKinley administration, for he has been working in the cause of the advancement of government efforts in behalf of agriculture much longer than he has been head of the department. When he was a member of Congress he urged the erection of the Bureau of Agriculture, and its removal from the Interior Department into a separate department with a cabinet officer at its head. Little did he foresee that he would one day be at the head of the department he helped originate, but since that time he has been working for "the man with his coat off."

It is believed that the retention of Secretary Wilson is not deemed advisable by Mr. Taft only on the ground of his good work at the Department, but also by reason of the fact that he has mingled with the farming element, thus learning the true consensus of public opinion and able to give advice on the real feelings of the people. He will be an asset to Mr. Taft as an adviser on some other things than agriculture.

INCREASED USE OF MACARONI WHEATS

Mark Carleton, cerealist of the Department of Agriculture, reports that a careful resume of different estimates of the durum wheat crop for the year 1906 would indicate that about 45,000,000 bushels were harvested, a little less than one-sixteenth of the entire wheat production of the United States for that year. Of this total production there were exported to foreign countries 20,000,000 bushels. It is believed that about 5,000,000 bushels were used in sowing the acreage for 1907. There was left, therefore, 20,000,000 bushels for domestic consumption. An increased use of durum wheat is made each year for breakfast foods, and a considerable portion of each year's crop is used for this purpose. There is, nevertheless, a large proportion of the 20,000,000 bushels that was certainly used by the mills for making bread flour. Practically all of the durum wheat crop that was available in large quantities was sold before the end of the winter, while a considerable part of the crop of 1907 was sold in advance.

The Department of Agriculture is engaged in the selection and propagation of pure types of durum wheats. In cooperation with the North Dakota Experiment Station rigid selection of durum wheat has led to the establishment of a particular type which has recently given an increased yield of at least 50% over that of other varieties.

A NOVEL ROAD PLAN

During the past week at the meeting of the Independent Asphalt Association, a new kind of country road—a combination of asphalt and macadam was proposed. The innovation was suggested by Amzi L. Barber, who has spent most of his life in the asphalt business. A macadam highway, with a strip of asphalt in the middle, he said, was the hope of the future, the only highway to stand the heavier loads and the ever-increasing automobile traffic.

"It is only a question of time," he said, "until appropriations will be made by the government for the extension of public roads. They are as necessary for good roads as for rivers and harbors or for postoffices. The farmer has the same right to demand quick delivery, which is possible over a good road, that the city man has to demand fast mail trains and frequent delivery by city carriers.

"I have, after long and careful consideration, come to the conclusion that the best, if not the only solution of the problem is a combination of an asphalt strip of suitable width, running thru and usually in the middle of the macadam road. Horses can be driven on the macadam as now, if desired. Automobiles when the road is clear, will have an ideal surface in the middle, equal to a billard table, with no ruts or lumps to look out for. Finally, and if no other advantage were to be gained, the farmers can haul on the asphalt more than double the load that they can haul on macadam. This consideration alone should decide the matter in favor of the asphalt strip."

Taking the average cost of making a sixteen-foot macadam roadway as $10,000 per mile, Mr. Barber estimated the total cost of a sixteen-foot road with a six-foot strip of asphalt in the middle at about $12,000 a mile, an increase of 30%.

Figures issued by the Department of Agriculture show that up to January 1st, last, there were 20,640,000 horses valued at $1,974,052,000, as compared with 19,982,000 on farms the same date last year, valued at $1,867,530,000. There were also during 1908, 4,053,000 mules, 21,720,000 milch cows and 56,084,000 sheep. The total value of all horses, mules ,cows and sheep on farms during the year was $3,168,710,000.

PAPER MAKING FROM CORNSTALKS

The House of Representatives Committee on Agriculture has favorably reported a bill introduced by Representative Stanley of Kentucky which appropriates $30,000 to be used by the Secretary of Agriculture to conduct the experiments, put into operation and improve the processes now in use for making paper material from cornstalks and to purchase a site near Henderson, Kentucky, erect buildings and purchase the necessary apparatus. Should this bill pass the House and Senate, the Secretary will be enabled to determine the practicability of making paper material from cornstalks.

FOREST RESERVE ADVOCATES WIN

By a vote of 9 to 8 the house committee on agriculture has agreed to report to the House of Representatives the Weeks bill, providing for a commission for the establishment of a White mountain and southern Appalachian forest reserve. The action of the committee is regarded as a great victory for the advocates of this reserve for the conservation of the navigability of rivers and the preservation of forests. Before finally reporting the Weeks bill, however, the committee placed a limitation on the amount of money that may be expended. As finally agreed upon the bill provides that not more than $1,000,000 shall be expended during the coming fiscal year for the purchase of land for reserves and not more than $2,000,000 in any subsequent year. The life of the proposed law is fixed at ten years.

THE ARGUMNET OF THE OPPOSITION

The House Judiciary Committee has decided that no legislation for the purchase of lands to be set apart as a forest reserve is constitutional unless it can be shown that the forests increase the flow of navigable rivers. Forestry experts believe they can show that forests do have this effect, and in fact much of the agitation for these two reserves, one in New England and the other in the South, comes from persons who are interested in maintaining the flow of water essential to preserve existing water power.

Chairman Scott of the House Committee on Agriculture states that he has visited the Southern Appalachians and he finds that conditions there have been "greatly exaggerated." He states that he is not at all convinced that the forests have any influence over stream flow, nor does he believe that deforestation has anything to do with soil erosion noticeable in the mountain regions.

Unfortunately, Mr. Scott's forest theories clash with the facts as presented by manufacturers, scientists and forestry experts who have studied the subject with great care and for a long period of years. It seems that the majority of the members of the committee have not sided with their chairman and the favorable report is the outcome of an extensive and bitterly waged fight.

INVESTIGATION OF FARM WATER SUPPLY

The Department of Agriculture has made a thoro examination of over 100 farm water supplies with a result that it has been shown that rural sanitation is dangerously bad and that in a large percentage of the cases great improvements could be made at comparatively small expense. The investigations have also shown that cursory examinations of farm supplies are usually liable to misinterpretation and that a water supply which is in reality of great purity may be condemned and vice versa. This can be corrected only by a thoro study of the supply.

ELEMENTARY AGRICULURE

By G. W. Randlett, N. D. Agri. Col.

Lesson Three: Seeds and Plants

Every healthy seed has within itself a germ or embryo. This is really a little plant snugly wrapped within the folds of the mother seed. You can easily see it in a kernel of corn by carefully cutting away a portion of the tip. If this little germ is not healthy and vigorous by reason of immaturity of the seed, excessive moisture or any other cause, it may fail to grow at the time when it is expected to do so. The mother kernel may fail to supply the baby plant with a sufficient amount of nutritious food, in which case thrifty growth will be impossible. The little plant will be "stunted" just like an underfed calf or pig. If a part of the seed germs fail entirely while others develop into puny weak plants, the yield of the crop will surely be reduced greatly. It is just as important then to select for planting and sowing strong, well-bred seeds as to select only the best of animals for breeding purposes.

Methods of Testing

Count out one hundred seeds of some farm crop, as corn, wheat, or clover and test according to the method given in the State Course of Study which is as follows: "Invert a small pie plate in an ordinary dinner plate, then pour a small amount of water into the dinner plate; place a double cotton flannel cloth over the pie plate wide enough to reach from side to side and long enough to reach into the water from both sides of the plate. The cloth will carry water to the seeds placed between the folds of the cloth as a lamp wick carries oil, and in sufficient quantity to sprout the seed. Another dinner plate should then be placed over the pie plate and cloth to prevent too rapid evaporation of the water. Seeds tested in this way under ordinary temperatures and care give better results than they would had they been sown in the field, where varying temperatures, depths of covering, and moisture obtained, act as a drawback to the full germination of the seed. These facts should be taken into consideration when trials are made."

Favorable and Unfavorable Conditions

Provide several flower pots, empty crayon boxes, or other receptacles of suitable size. Fill these with soil and plant in each twenty kernels of some kind of seed, say corn. Keep one moist and warm—seventy to eighty degrees. Let another be kept warm but dry. If possible keep another at a low temperature—forty to fifty degrees. Give another warmth and moisture but place in the dark. Surround still another with conditions of warmth, moisture and light but deprive it of air. This may be done by planting seeds in a bottle which can be tightly corked. Carry out as many of these experiments as conditions will permit and note results from time to time.

Depth of Planting

Have a piece of glass cut just the size of a crayon box cover. Cut away a portion of the end of the box. Slip the glass plate in as a cover, and scatter some soil in the bottom of the box. Now plant a kernel of corn five inches down in the box and against the glass front. Gradually fill with soil and plant other kernels at four, three, two, one, and one-half inches from the surface. Place under favorable conditions and note results.

Plant Food

When the right conditions surround the healthy seed—warmth, moisture, light, air, etc., it begins to grow; i. e., the germ begins to grow and the rest of the seed to die and waste away. This is because the greater part of the seed is in the form of food that nature has provided for the little plant too weak and frail and without organs developed to take food from outside sources. So the infant plants draws upon the mother seed for food which it digests and upon which it grows and develops roots, stem, and seed leaves or cotyledons. If the parent seed is full and plump, well stored with this starchy food the young plant will have a good start in the world and in all probability will be blessed with a successful plant career. The time soon comes however, when the baby plant must be weaned. It now has roots, stem and leaves—all the organs necessary for self sustenance. Aside from water all its food now must be taken from air and soil, the great sources of all food. Nature has generously stocked the soil with those substances which plants need for growth. These substances are dissolved in water which falls as rain and trickles or percolates down thru the soil. Now at the outer ends of the finest roots there are very very fine little root hairs which have the power to absorb or take up this water solution of plant food. The solution now becomes a part of the sap current and is carried upward thru the roots, along the main stem, out thru the branches, even to the very leaf-tips. In the leaves other activities are going on. In the two leaf surfaces especially in the under one there are little mouth-like openings called stomata. These little stomata take in the portion of food furnished by the air and no small amount it is either. Within the plant itself the air and soil foods come together and from these the material is made that builds plant tissue. As there is both an upward and a downward sap current these substances are readily transported to all parts of the plant system.

From these dead materials of the atmosphere and the soil the plant builds its tissues to become food for men and animals. Our clothing and our houses as well as the fires that warm them are all made possible because plants have digested and assimilated the elements of earth and air and sky.

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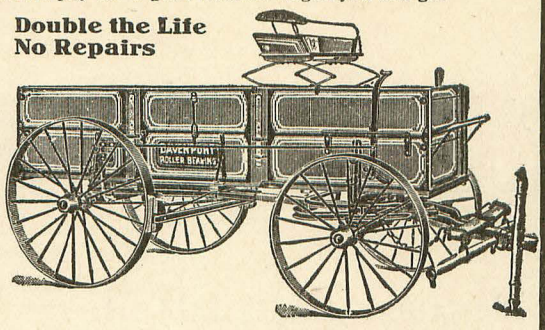

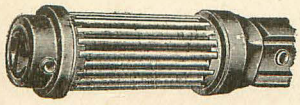

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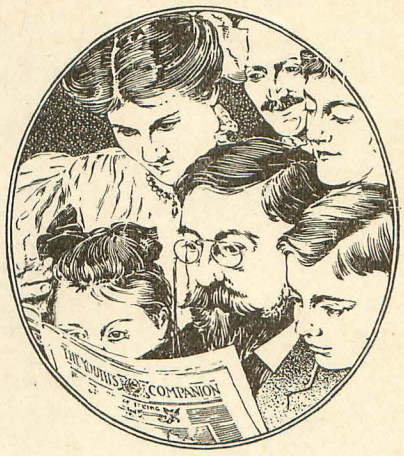

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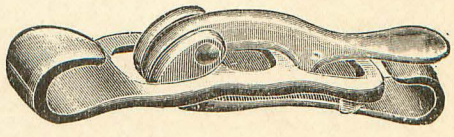

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